If interpretation of circumstances is at the base of all emotional upheavals, it is important to realize that most of our interpretations are conditioned by our past experiences in childhood. Some interpretations are influenced by the culture we are born into, while others are conditioned by the nature of the influences we grew up with. Whatever circumstances we face today are interpreted through past conditionings. Our present worries, feelings of inadequacy, frustrations, fears and fantasies about the future are therefore only the result of concepts based on past experiences. To take these concepts seriously is to create further emotional upsets *(dukkha)*

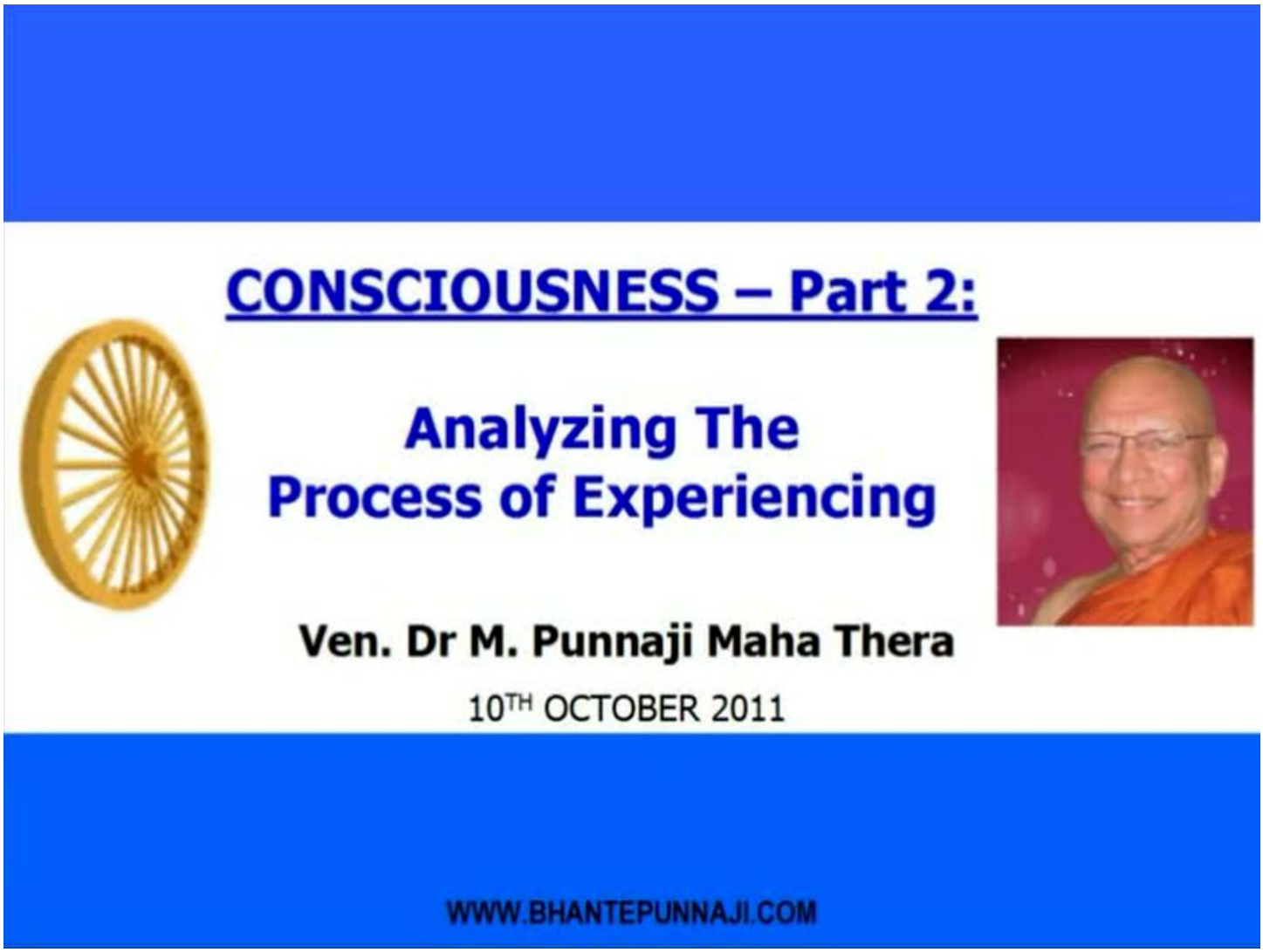
It is interesting to note that the *Madhupindika Sutta* in the *Majjhima Nikaya* provides an explanation of how the cognitive process recognizes objects through categorization of past experiences *(tatonidanaŋ purisaŋ papancasanna sankha samudacaranti atitanagata paccuppannesu cakkhuvinneyyesu rupesu).* This recognition of objects by placing them in categories makes an individual react to past, present, and future images.

When this is fully understood by a stable mind, it helps one realize that most interpretations are not necessarily facts. When this is realized, the strength of the interpretation is diminished. Then even the validity of the interpretation is doubted, resulting in the total elimination of the wrong interpretations as well as the self-centered emotions that come with it.

This cognition based on *(tato nidanaŋ)* categorization of sensations *(papanca sanna sanka)* begins to influence an individual's *(purisaŋ)* behaviour *(samudacaranti)* in relation to past, present, and future images *(rupa)* cognized. (Eg. A young girl opened a closet and a dog jumped out. She was frightened. When she grew up to adulthood she continued to fear closed spaces (claustrophobia).

Experience of Being Conscious
The Parallels of Analysis
The Original Teachings of the Buddha
&
Neuroscientists and Psychiatrists
Recent Discoveries

The Process of Experience
Cognitive Process
Memory
The “Triune” Brain
Neural Connections
Dopaminergic Pathways
The Learning Brain
Our Emotional Brain
Amygdala Controlling Fear, Anger, Threat
Amygdala & Post-Traumatic Stress Disorder
Affective Process
Fight-or-Flight Reaction
“Tug of War” Between Feeling & Thinking
Amygdala vs. Prefrontal Cortex
Cognitive Dissonance



We have been discussing the teachings of the Buddha for a long time now. We were really talking about the teachings of the Buddha by dividing the teachings into sections, where we said we started by saying that Buddhism as a religion, and we discussed that, to see Buddhism as a religion or to look upon Buddhism as a religion because there are some who think Buddhism is not religion. We also defined religion in various ways, and we gave the Buddhist definition of religion. We also spoke about Buddhism as a philosophy, and we saw it from a philosophical point of view. Then we also started talking about Buddhism as a psychology, and we spoke about it as a psychology, and now we are really coming to the end of our discussions.

And also there is another section where we are going to talk about Buddhism in practice, where we will be talking about the practice divided into two: (1) the practice of layman or the householder, (2) and the practice of the monks or the monastic, so we didn't get into it yet. And because we are finishing what we were talking about last time, and that is mainly about our consciousness, and we also pointed out that we are just unconscious organisms in an environment. We started as unconscious organisms, and gradually as Evolution took place, we became conscious, but we are not fully conscious; although we think we are conscious because we are conscious of a World and we are conscious of a "Self" in the World, and this is we might call "Consciousness of Existence": Existence of a World and an Existence of a "Self".

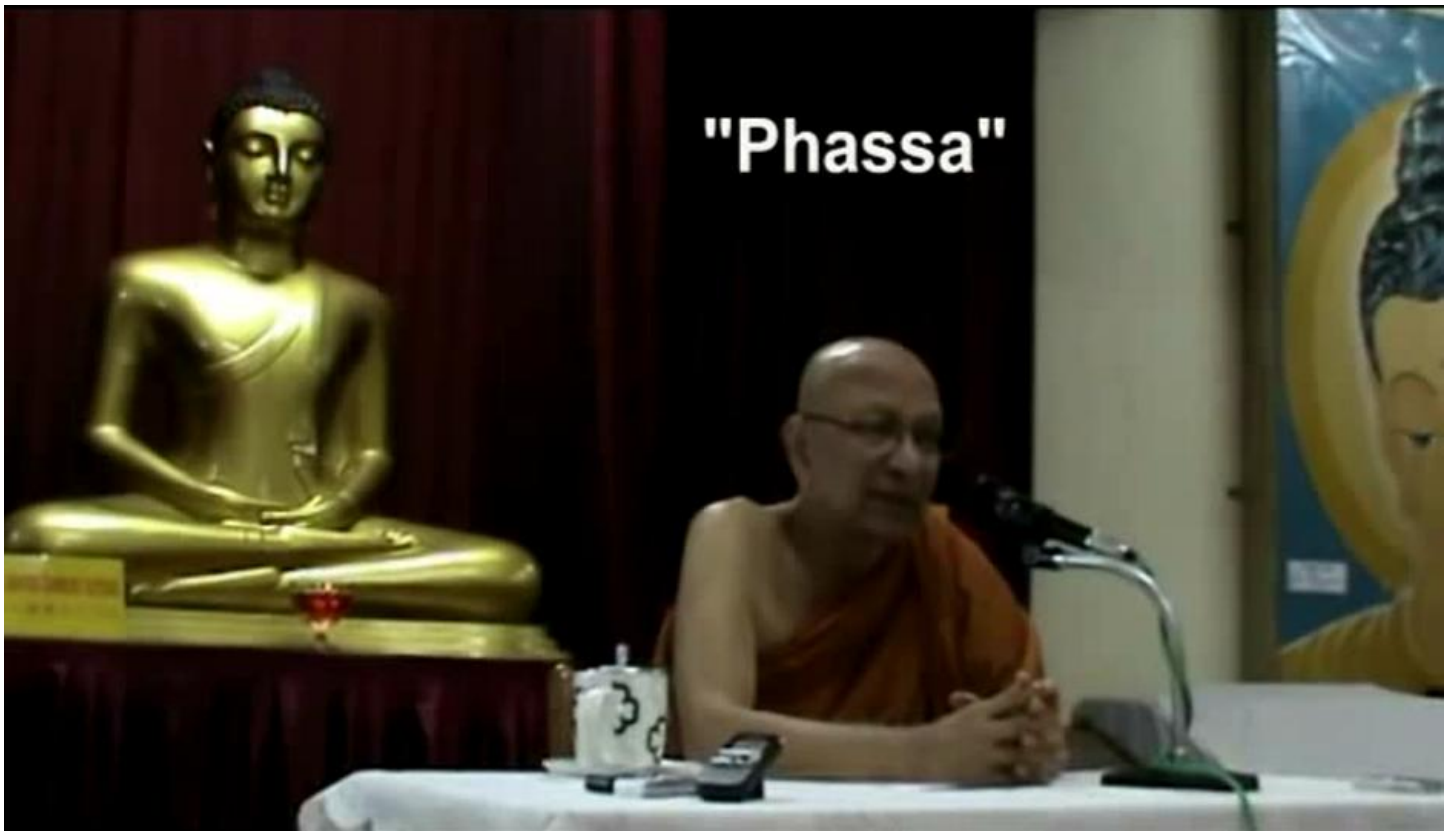
Now this consciousness of existing is what the Buddha called "*Bhāva"*, and we are still dreaming that we exist. The Buddha is a person who evolved beyond this level, and he awakened from the Dream of Existence that means this Existence that we are aware of is a Dream, so it is only when we have awakened from this Dream of Existence that we gain freedom from all Suffering because life began with the mistake; life began with a mistake. Now you know the Christians talk about the thing called The Original Sin; they speak of a thing called The Original Sin. But here when we think in this Buddhist way we can even speak about this mistake as The Original Sin because when life began, it began as a molecule, unusual kind of molecule which today they speak of as the DNA, but this molecule had the special property which was its ability to absorb atoms from its surroundings and build molecules of its own kind.

But according to the natural law that everything that is integrated is subject to disintegration. This molecule breaks down, but although the molecule breaks down; in breaking down, the energy is released, and that energy is again used to build new molecules. So it went on building new molecules, but every time the molecules break down, and because it continued in this way, there was a continuation not of the individual but of a generation. And this is what Charles Darwin saw as the Struggle for Existence. So there is a Struggle to Exist, keep on existing, but no one really exists, everyone has to die.

So this death becomes the biggest problem; the most fundamental problem of life. What we call Life is not the real existence; it is only a struggle to exist, but no real existence, and this is the Suffering that the Buddha spoke of. And it is only when the human being is produced by this Process of Evolution that the human being becomes conscious of a World and becomes conscious of a "Self" that is struggling to exist. It is only when the Evolution goes beyond that level until it becomes a Buddha, that the Buddha becomes aware of this mistake, this futile Struggle to Exist, and realizes that we are not really existing; we are only struggling to exist. It is only when we have properly understood the mistake that we cease to exist or cease to "Struggle to Exist" because the struggle is not only futile, it is also painful and unpleasant.

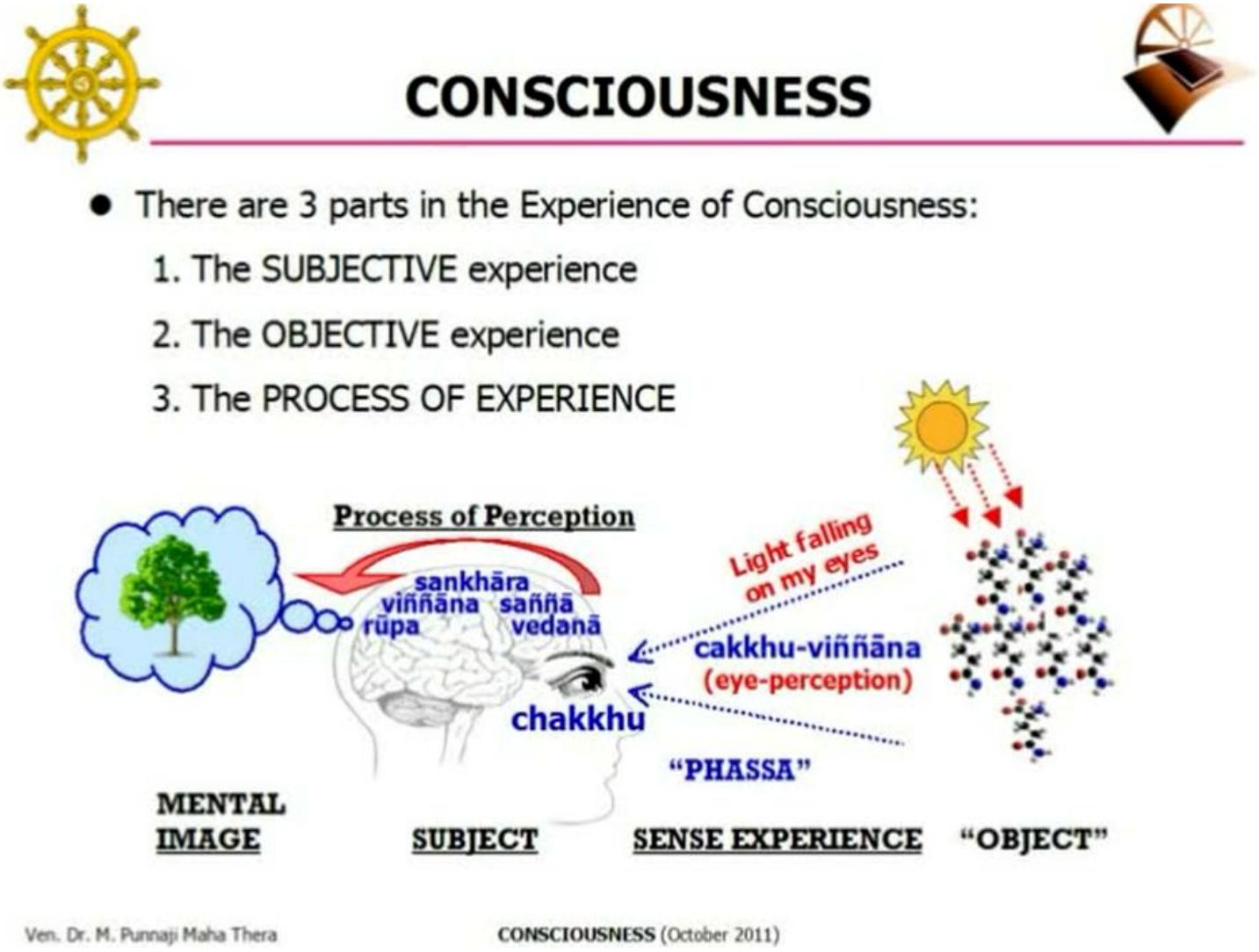
And when we began to talk about this, we also brought modern scientific discoveries, modern scientists have been discovered in many things, and now they have even begun to examine our mind, not only a mere psychology, it has become a very scientific, biological process. And whatever the Buddha has been pointing out, modern scientists are not only agreeing, they're now with their research they're approving that it is true. **Only thing is to come out of this problem or to solve the problem, we have to learn to evolve.** And this Evolution is not only a Biological Evolution, it has to become a Psychological Evolution, where the evolution is not only done unconsciously like biological evolution, this has to be done consciously by each individual. One individual cannot solve the problem; it has to be done by each person. So this is why the teaching of the Buddha has to be practiced by everyone.

Now I have been saying these things many times. And today mainly, we are going to talk about our Experience or Consciousness itself, and Consciousness we said, when we speak of being conscious, there are three parts to this Consciousness: the Subjective part, Objective part, and the Experience itself. That means when we speak of being conscious, we speak of, "What are we conscious of?" "What" are we conscious of and that is the Object, and when we speak of "Who" is conscious then we are talking about the "Subject", and when we speak about "Being" conscious that is the "Experience" of being conscious.



So those are the three parts that the Buddha spoke of.

And being conscious or this consciousness is what the Buddha called "*Phassa*"; "*Phassa*" "*PHASSA*"; "*Phassa*".



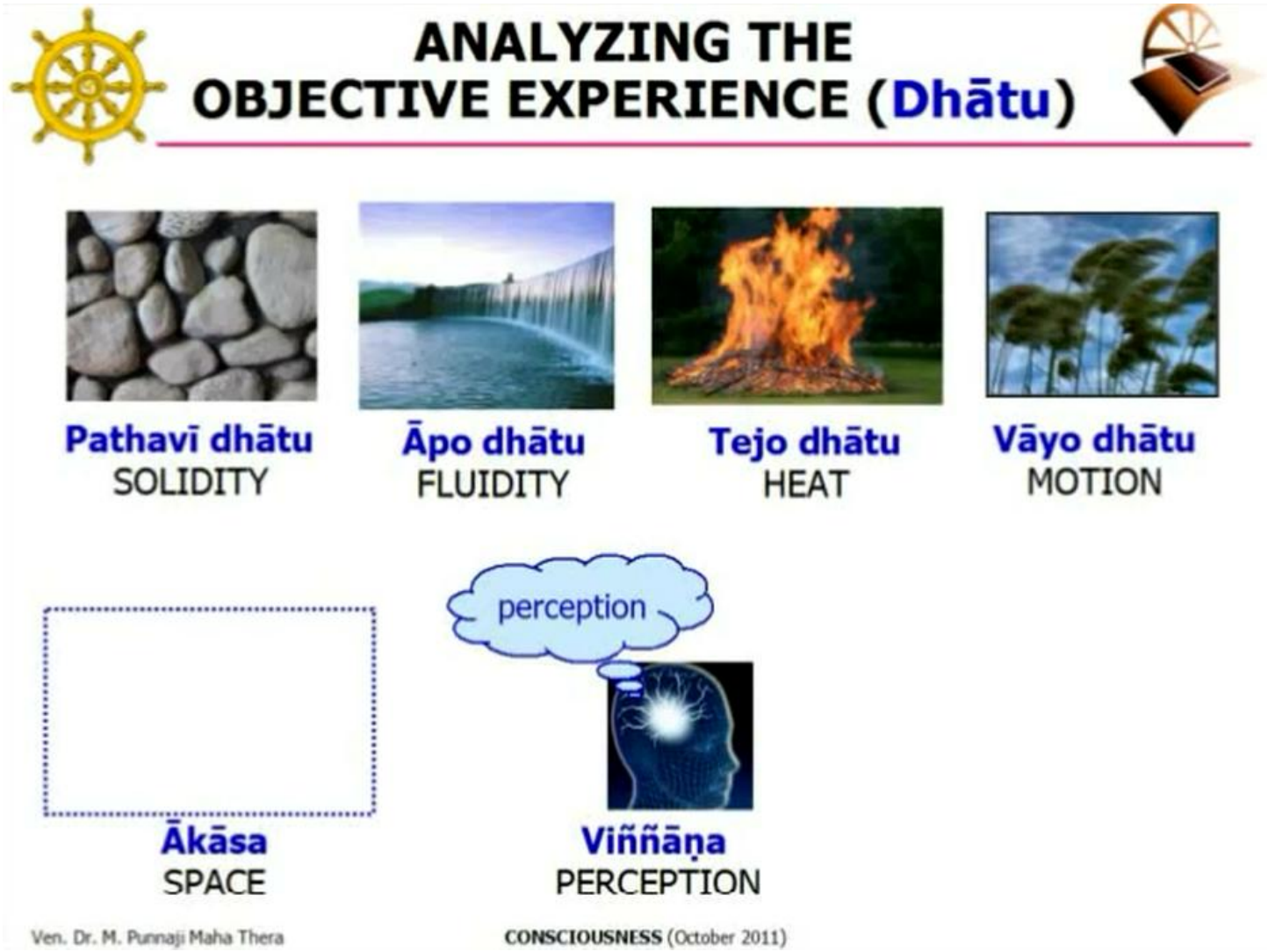
And "*Phassa*" has three parts.

If we take the “Eye” there is the “Eye”, and what is “Seen” with the “Eye” it is called "*Rūpa*".

The “Eye” and the “Seeing”, "SEEING", "Seeing" is the Experience.

So we have been analyzing, the Buddha analyzed these three parts of the Experience.

ANALYZING THE OBJECTIVE EXPERIENCE



We spoke about analyzing the object in the form of *"Pathavī-dhātu", "Āpo-dhātu", "Tejo-dhātu", "Vāyo-dhātu", "Ākāsa"*, and *"Viññāṇa"*.

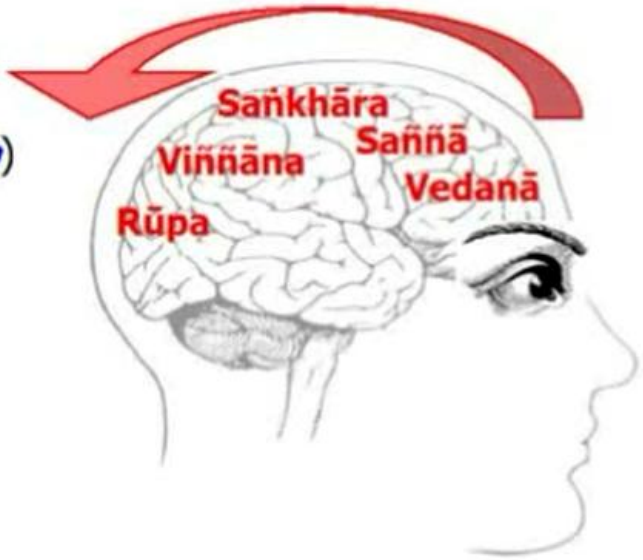
Then we also analyze the subjective part, which is the process of "Seeing".

THE 5 ACCUMULATIONS (*Pañca khandha*)

THE 5 ACCUMULATIONS ("the 5 aggregates") :

- Feeling (***Vedanā***)
- Sensation (***Saññā***)
- Mental Construction (***Sankhāra***)
- Perception (***Viññāna***)
- Mental Image (***Rupā***)

Process of Perception



Ven. Dr. M. Punnaji Maha Thera **CONSCIOUSNESS** (October 2011)

And that is analyzed as *"Rūpa, Vedanā, Saññā, Saṅkhāra, Viññāṇa"*.

"*Vedanā, Saññā, Saṅkhāra, Viññāṇa"* refers to the Process of Seeing.

And *"Rūpa"* refers to what is "Seen".

So we cannot separate these things.

But today we are talking about the Experience itself that is the "Seeing" part.

And that “Seeing” is again not only “Seeing”, it is hearing, smelling, tasting, touching, and even thinking, that is.

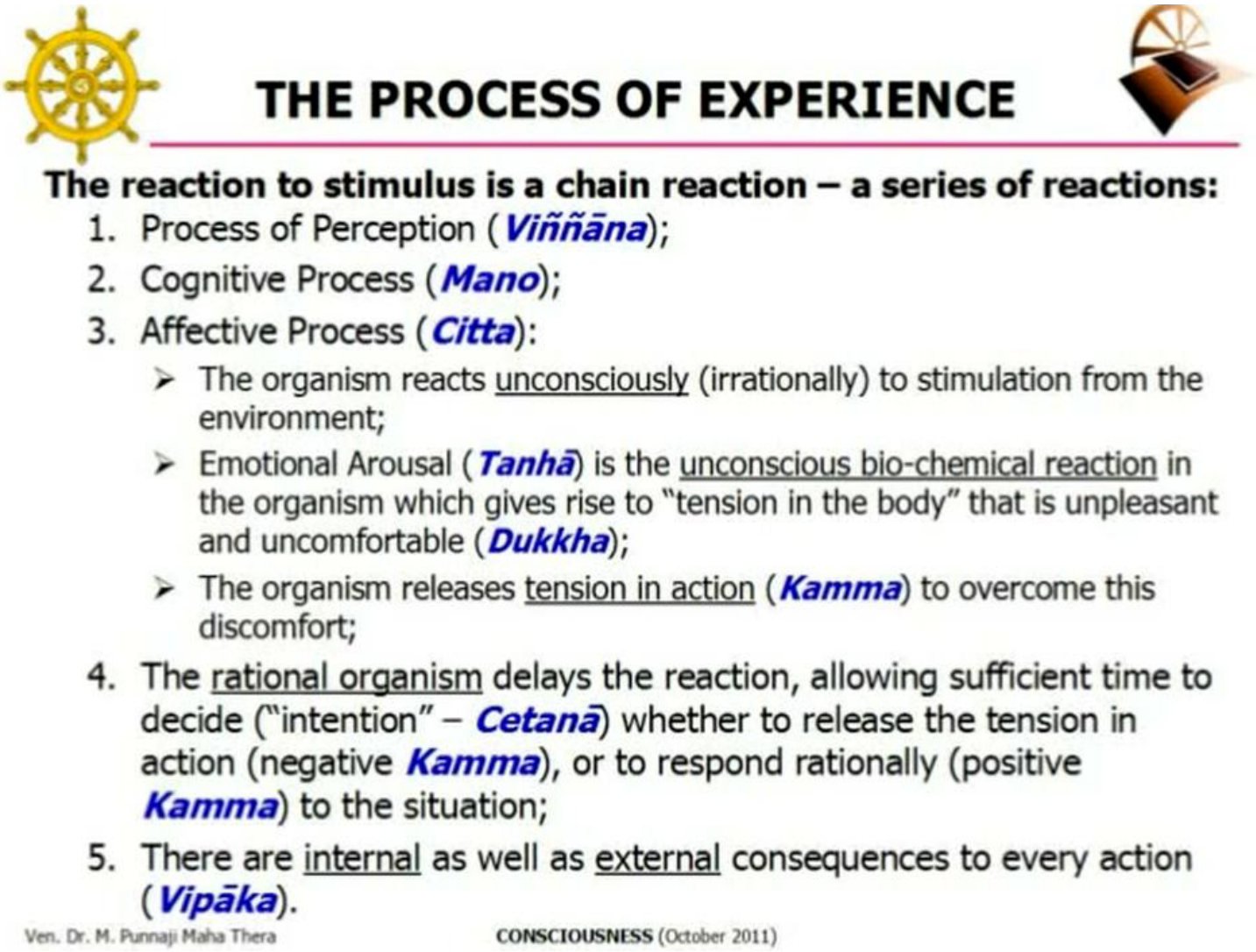
Those are the six parts of the Experience, which is the Experience of “Being Conscious.”

ANALYZING THE PROCESS OF EXPERIENCING

So in talking about analyzing the Process of Experiencing, the Buddha analyzed this into six. So from here on we have already spoken about this to a great extent, and today we'll see these in picture form and our friend will be able to put this in the form of pictures and show you.

And so we must be very thankful to him for helping us to understand this better, and he has done a lot of research on this. And he has been away for some time, but now he's back again with a lot of new material, and so we can see how it is explained. Okay.

Shall I begin to start? Okay, thank you, Bhante. I think Bhante has taught this before, but we will recap and it's in your notes, the top part the Process of Experience.



React this is about the Reaction to Stimulus, and it is a Chain Reaction, a Series of Reaction.

First when we experience the Process of Perception, we get the Perception of whatever we think we are “Seeing” the Object, which becomes an “Image”.

It goes through the Mind, and there is a Cognitive Process, which is known as "*Mano*". In this Cognitive Process, it is also interacting with the Affective Process, which is called "*Citta*".

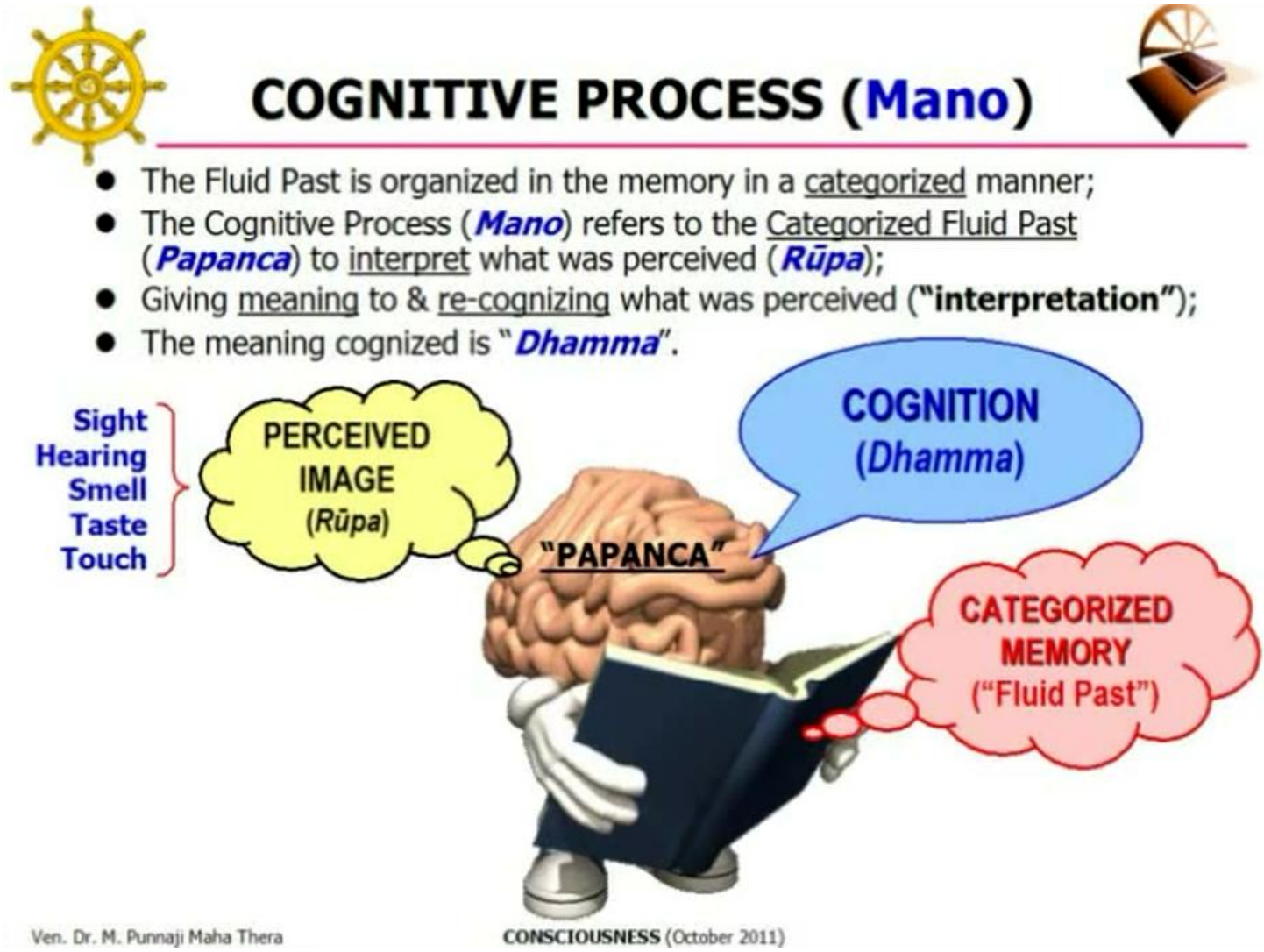
Under normal circumstances, the Organism reacts unconsciously to Stimulation from the Environment.

Venerable Punnaji: Now this is very important to understand because we spoke about this. We are Organisms in an Environment, and as Organisms we are “Stimulated” by the Environment: light falling on the eye, sounds coming to the ears, smells coming to the nose, taste coming to the tongue, and touches coming to the body. So we are being stimulated, and the Organism reacts to the Stimulus, and this reaction is a Chain Reaction, which means several pieces of the Reaction, like a chain.

And the first is what we call “Perception”. And then what is perceived through the “Senses”, the Brain begins to interpret and give meaning to what we saw or perceived. And then according to the “Interpretation” that is given, we “React” emotionally to it. And with the Emotional Arousal comes the “Action” part, where we begin to “Behave” in the emotional way. We express our “Emotions” in “Speech” and “Action”. And then of course that becomes what we call "*Karma*" (“*Karma*” is Sanskrit; “*Kamma*” is Pali), and it also has consequences; that is called "*Vipāka*". So it is very important to understand this, and now this will be explained in more detail in the form of pictures and diagrams.

Billy Tan: So normal Organisms basically react unconsciously, but the rational Organism, the one that thinks that has, it has an opportunity to delay the Reaction, allowing sufficient time to make a decision, and intention which we call "*Cetanā*", whether to release the “Tension in Action” or to “Respond Rationally”. When we release tension in action, that is negative "*Kamma*", and when we respond rationally and reasonably, that is positive "*Kamma*".

Venerable Punnaji: Now this a very important thing to understand, that is all other animals are passively reacting to the stimulus, but the human being because of his Brain has this ability to delay the reaction to get sufficient time to decide what is the best response to make in a given situation and make that response. And that is the special thing that the human being has, but most people don't do that. And they are carried away by the Emotions, and they begin to commit all the Crimes and all the Wars and all the Troubles in the World.



Billy Tan: So in the in the Process of Perception, until we take Action, something happens in our mind the Cognitive Process.

And this is the Cognitive Process. When we have perceived an "Image", what the Mind does is that it refers that to "Memory". So the Fluid Past is all the experiences we have in the past. It is organized in the "Memory" in a categorized manner. Actually I have a few more videos to show on this, but I'll do it next week, there's not enough time to show everything. But this Process of Categorizing is very interesting to learn, we will do that next week. In the meantime we just proceed with the Cognitive Process.

Venerable Punnaji: This “Book” is like the “Memory”, where you look into the Categories, and then you begin to identify what has been seen, very interesting.

Billy Tan: So this diagram, this drawing here is just a metaphor to say that the book is the Memory of your Fluid Past. We call it Fluid Past because it is never static; it's continuously changing even in your Memory at this moment as we speak. Your Memory of any Past Experiences will never be the same the next time you think about it. So every time you see something, the Cognitive Process refers to this Categorized Fluid Past, and this whole process is called the "*Papañca*".

Venerable Punnaji: That word "*Papañca*" is very important. The "*Papañca*" simply means Categorizing. And whenever we identify something, we are really bringing it from our Memory, what we have seen before, and we begin to identify by using that, by categorizing, so that is the meaning of a "*Papañca*".

Billy Tan: And what that "*Papañca*" tries to do is to “Interpret” that “Image” and “Give Meaning” to it and “Re-cognizing” what has been “Perceived”, and this whole process is the “Process of Interpretation”. So the Meaning given from this “Cognization” is called “*Dhamma*”. So Cognition, “*Dhamma”*. And the book is like the Memory of our Fluid Past. So it takes the Image, goes to the past and then try to interpret what has happened; this whole process is called "*Papañca*".

I will quote you a simple example; for example, you walk into a shopping mall, and then you bump into your neighbor. The moment the face of the neighbor is captured in your Eyeball and goes to your Brain, the first thing the Brain does is to take the “Image” of the face of your neighbor and goes back into the Past and then try to find out whether this face resembles anything in your Memory. And then it found it "Ah ha!" There is a memory of this person is your neighbor, and then that comes up, and then you start to recognize, “re-cognize”, that this person is your neighbor. That's basically how it works.

Now this process, a lot of people underestimate the importance of this process. Even the psychologist and the neuroscientists have underestimated it, but I think based on Buddha's teaching, this has been very important part of the process, this "*Papañca*".

If something goes wrong with "*Papañca*", it causes a lot of delusions and hallucinations, and in Psychology that is called schizophrenia. So another words, if this "*Papañca*" process is not working properly, then we experience schizophrenia, and don't think that you don't have it. It has been said that at least half the population experiences, even in small degree, this schizophrenia condition. And they say in America, 5% of the population actually has a continuous schizophrenia condition.

Schizophrenia basically is causing a lot of hallucination and delusion because the "*Papañca*" process is not working. Whenever the person sees something, he starts to imagine some crazy things happening around him because the "Image" of the thing he sees is being interpreted as a whole lot of other problems and fears and threat.

The brain is truly a marvelous creation; the pinnacle of millions of years of Evolution. It is being compared to an orchestra with many components performing as instruments, playing brilliantly together to create the music of our own minds.

Each thought is a triumph of harmony and synthesis among billions of neurons. Our brains may actually remember everything we've ever seen, experienced, and imagined and it uses those memories to create an organized view of the world.

But if our brains cannot draw upon our memories in a coherent way, the result is dissonance.


Sc


Sc

“There was one time I remember I thought a giant 8-foot black widow spider was telling me what to do. I thought that it told me to cut the tail off one of my shirts, so I did that, so the spider wouldn't bite me; cut my shirt as quick as I could.”

Marion Crouse was twenty seven years old when the first signs of her schizophrenia showed up. She's a patient at the National Institute of Mental Health in Bethesda Maryland.

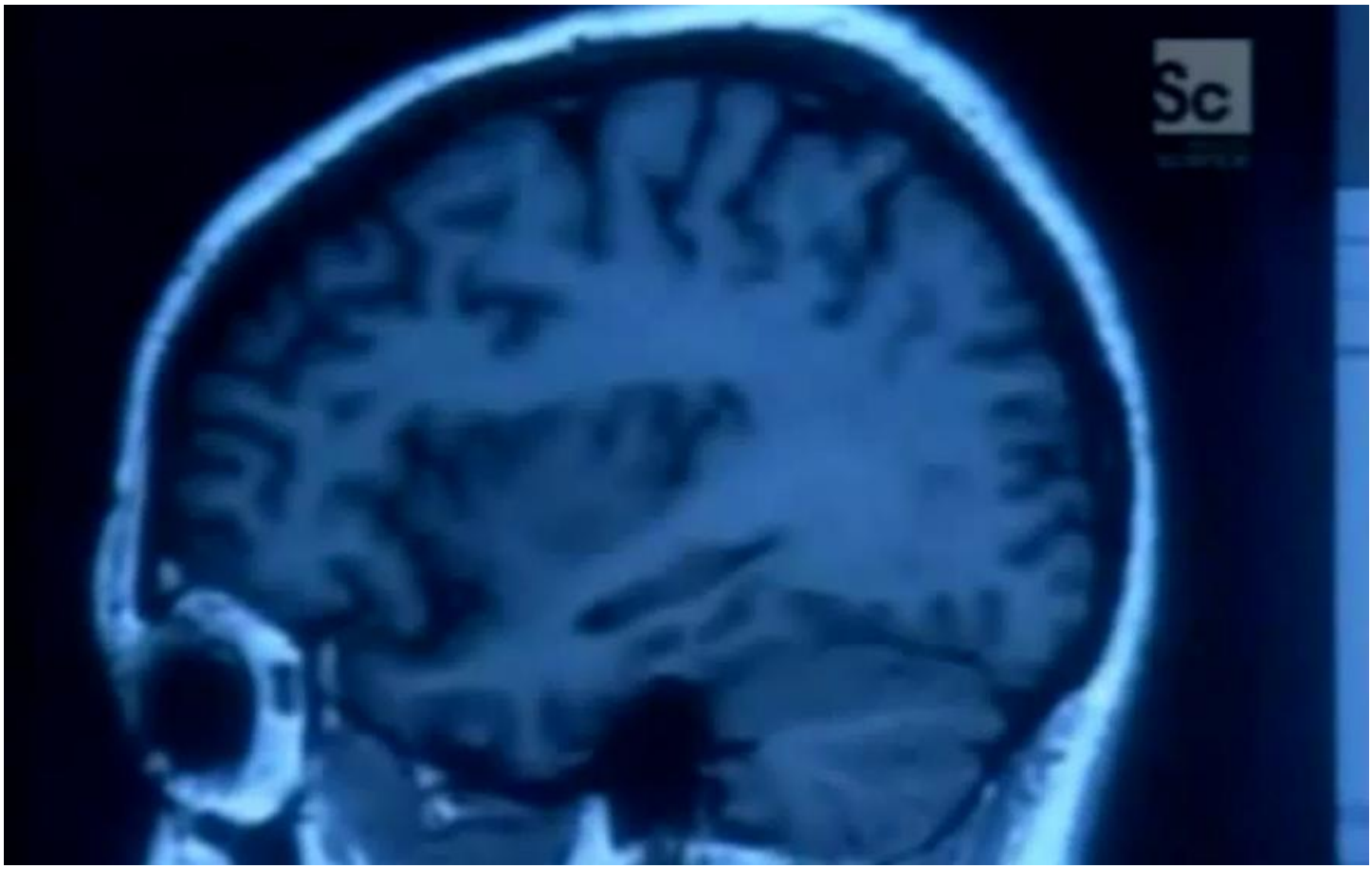
“A few weeks ago I was having like a lot of delusional thinking; six or seven months before I get sick. I was kind of depressed.”

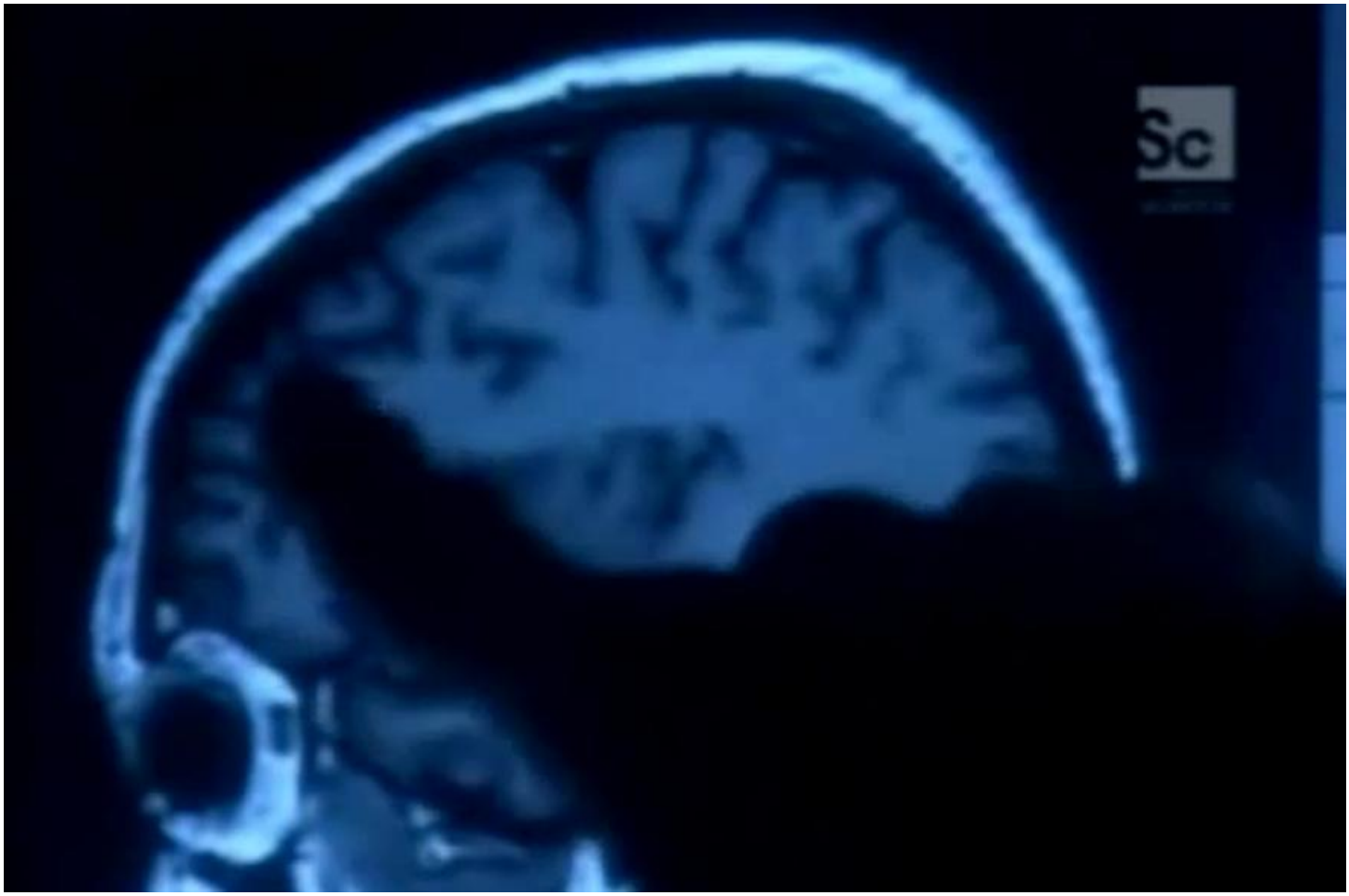
She is participating in a study run by Dr. Daniel Weinberger. He wants to know what physically happens in the brains of schizophrenics.

Marion was a Damage Control Firefighter in the Navy when paranoid delusions first began to take over her mind. They quickly destroyed her career.

"Also I started thinking that there was a conspiracy of people who intended harm to everybody who has a "J" in their name."

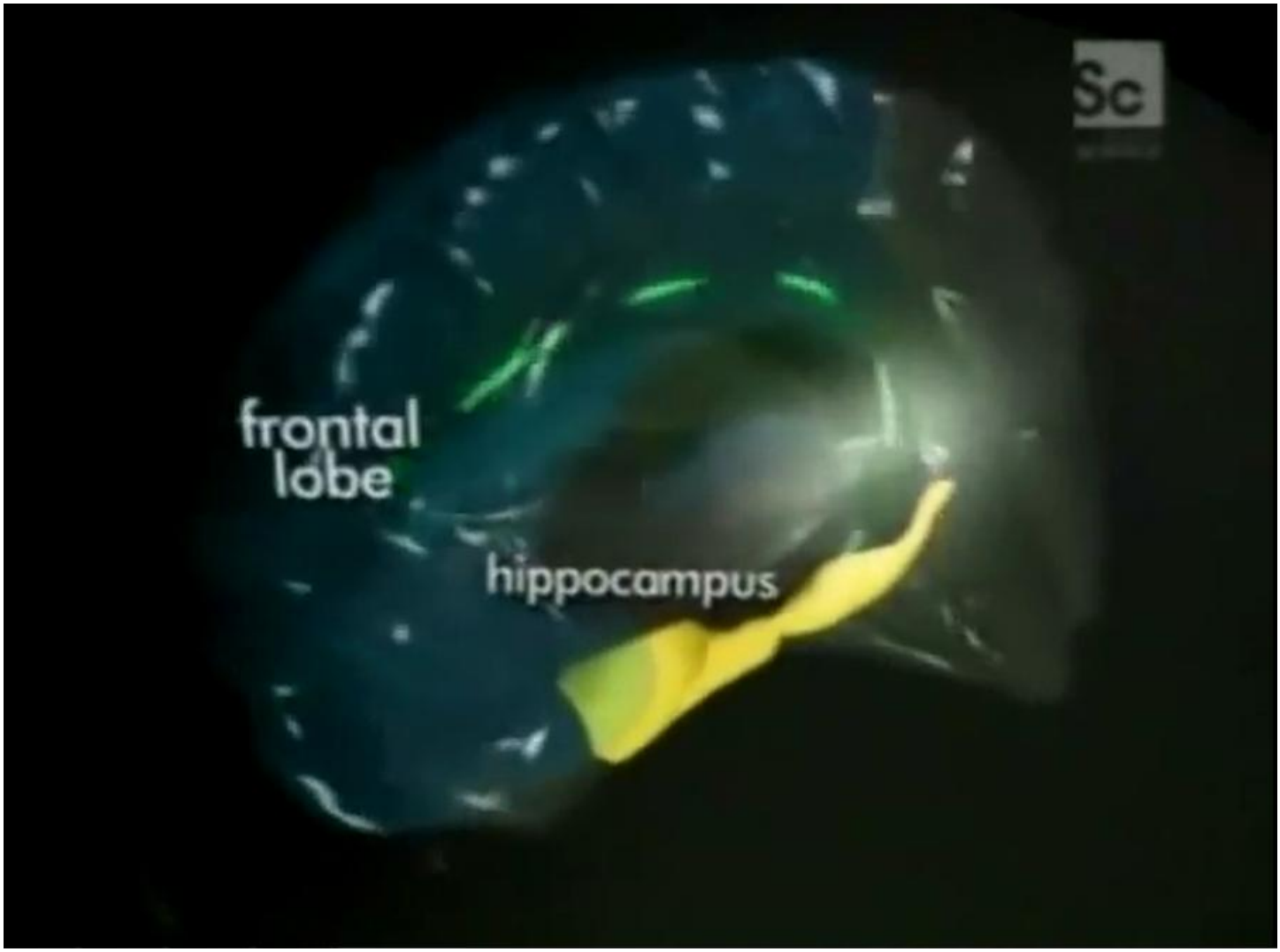
What could be responsible for the bizarre and destructive delusions of the schizophrenic? Dr. Weinberger is among those who suspect that early damage to certain structures in the brain, maybe even in utero could cause the neural networks to go haywire later in life.





Many of the brain imaging studies that have been done in schizophrenia have shown that the frontal lobe is not physiologically working correctly.

Another region of the brain, the temporal lobe called the hippocampus, is also abnormal. This is a part of the brain that is very important for comparing sensory stimuli to what you've experienced in the past.



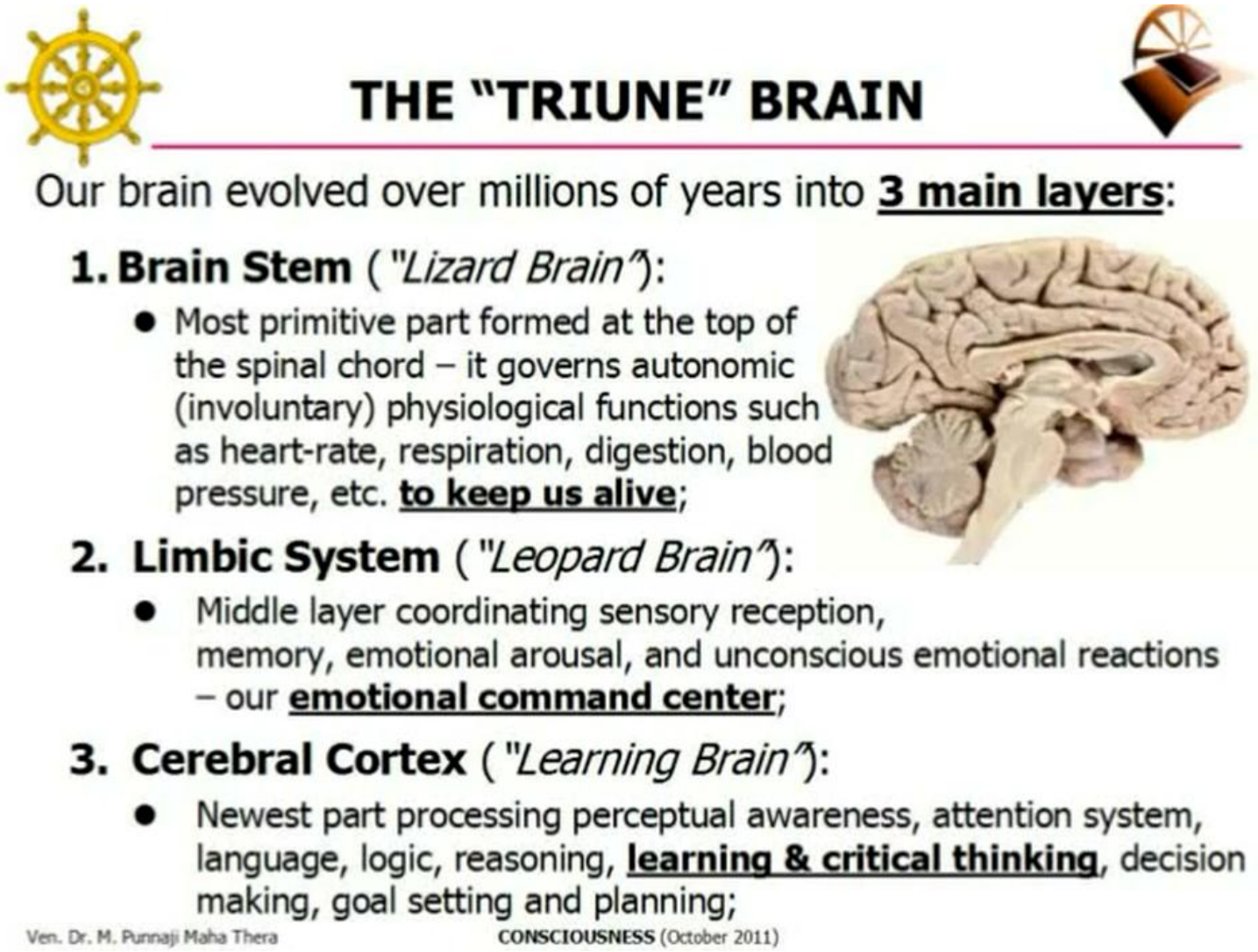
The hippocampus files memories and retrieves them for use by the frontal lobe which takes the data and interprets it, makes decisions, and takes action.

Venerable Punnaji: Yeah this is very interesting to understand. Even Sigmund Freud was talking about this; the importance of recalling the past in order to cure some of the neuroses and also the psychosis.

And today there is a Psychologist in New York who is also, his name Brian Weiss, and he's now not only getting people to recall the childhood, he's also getting people to recall their Past Lives.

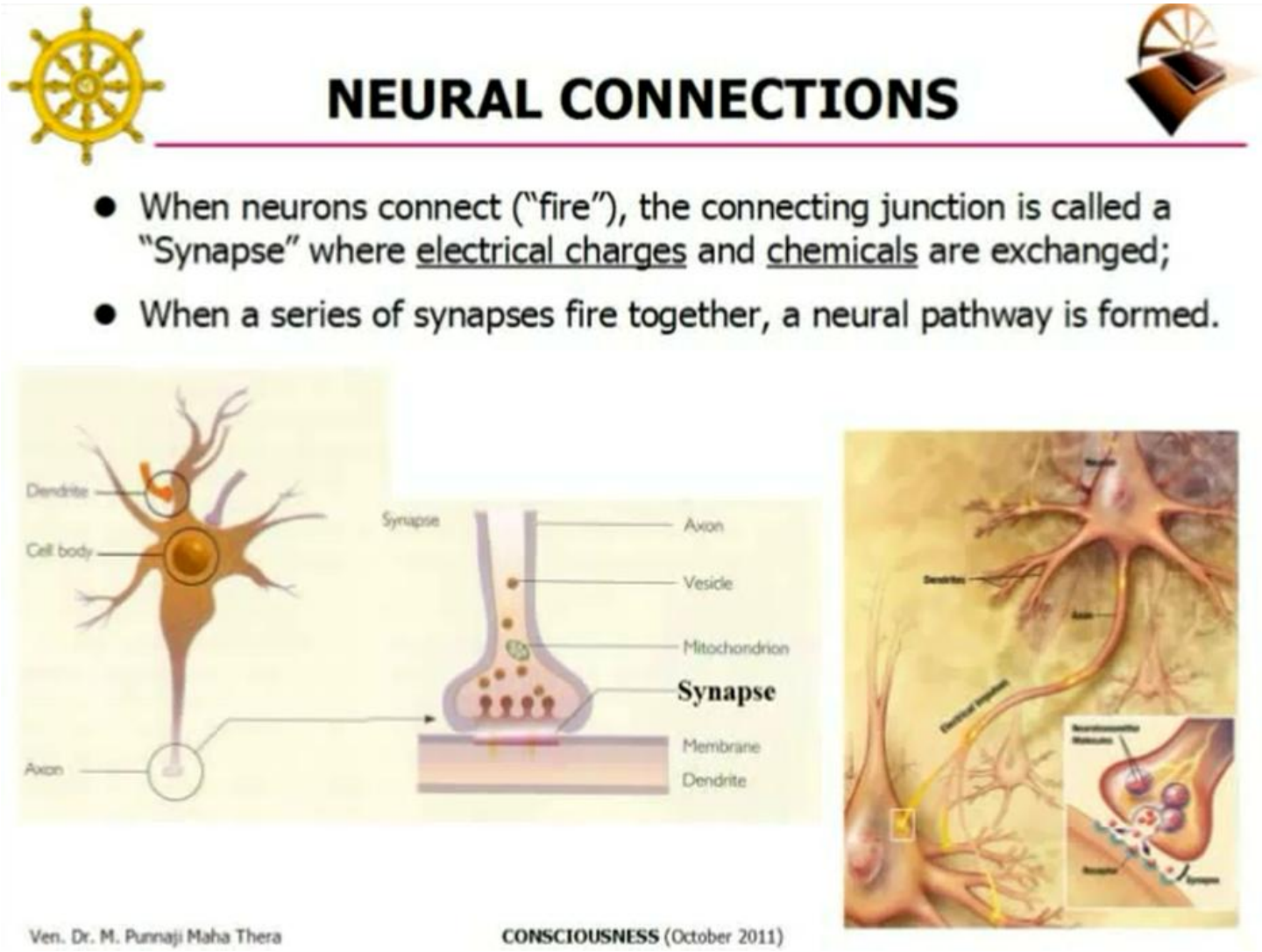
And sometimes a problem that you find in this life has been due to some Memory coming from the past lives. And so this way, the teachings of the Buddha is becoming more and more confirmed in this way.

So it's very interesting to know this.



Billy Tan: Very quickly recap what we have covered last week. The brain evolved into three main layers: (1) the brain stem which is lizard brain, (2) the limbic system the leopard brain, (3) and cerebral cortex the learning brain.

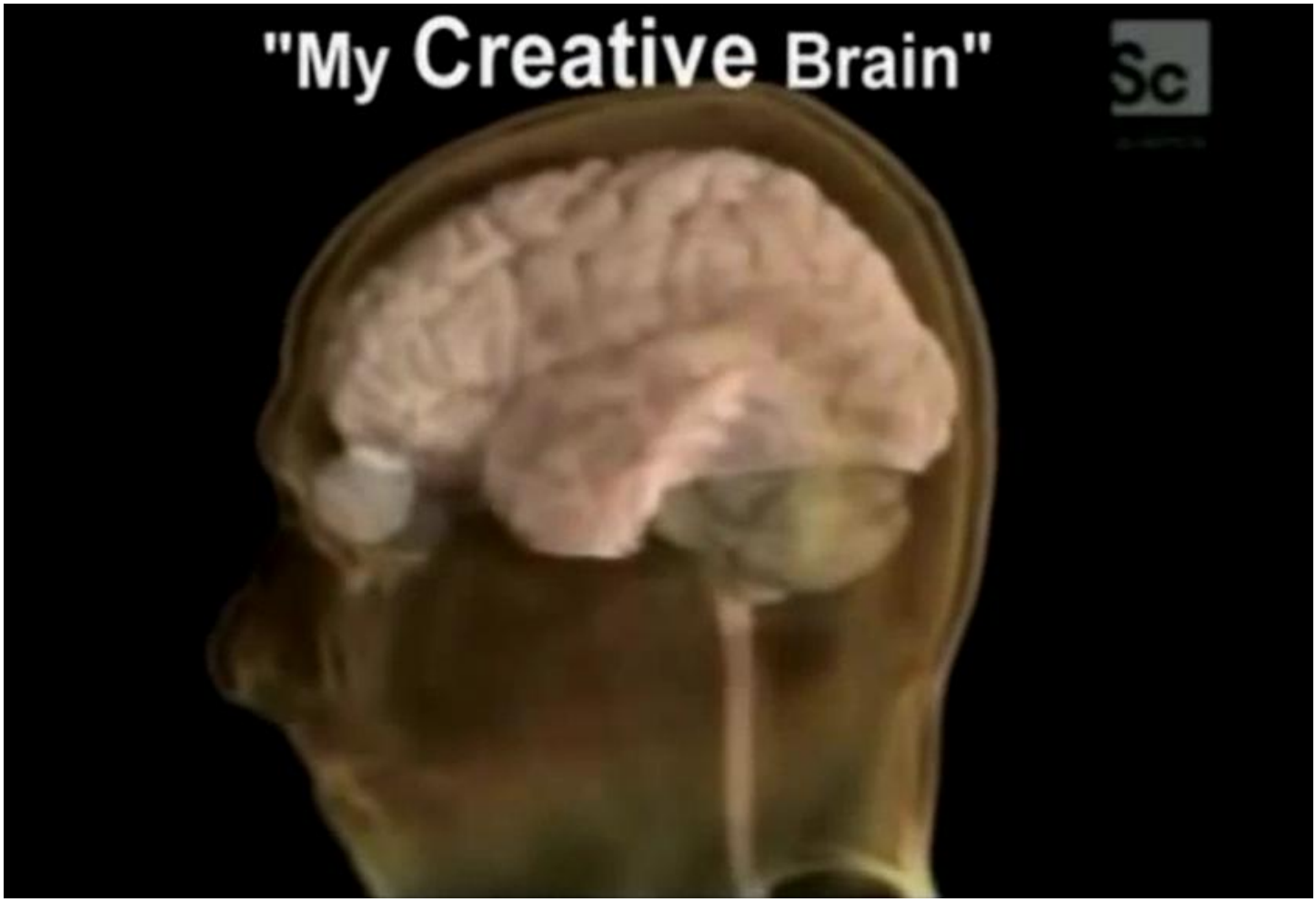
The limbic system is really our Emotional Command Center, and this is where things go right or go wrong very much so.



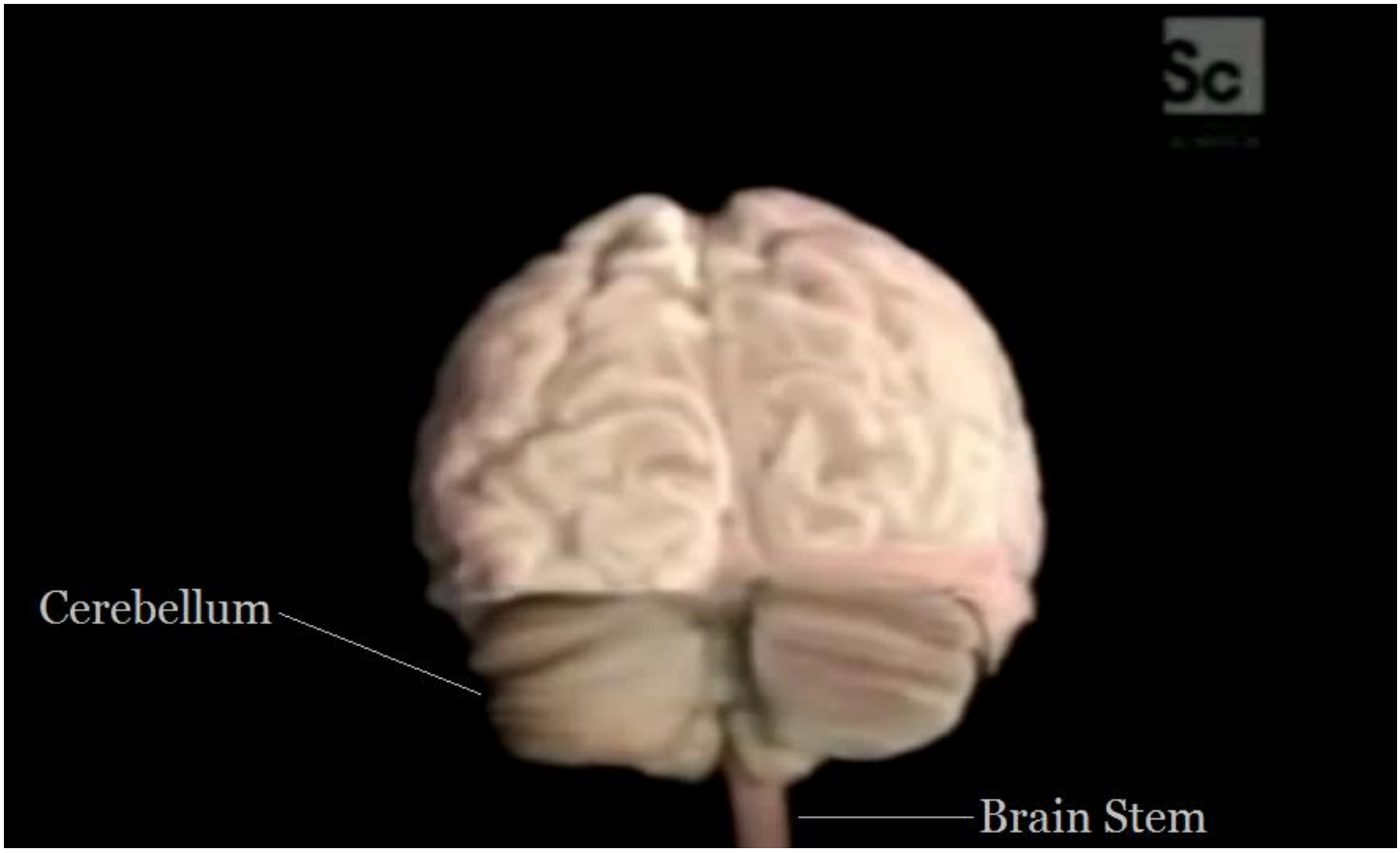
Everything happens because of two things flowing across between cells in our brain. So our brain cells connect and the connection point of connection is called synapse. Two things flow across the Synapse: Chemical and Electrical Charges.

So in this video I'm going to show you is example how creativity is the result of some Chemical Reactions in the Brain; chemicals flowing from one neuron to another through the Synapses.

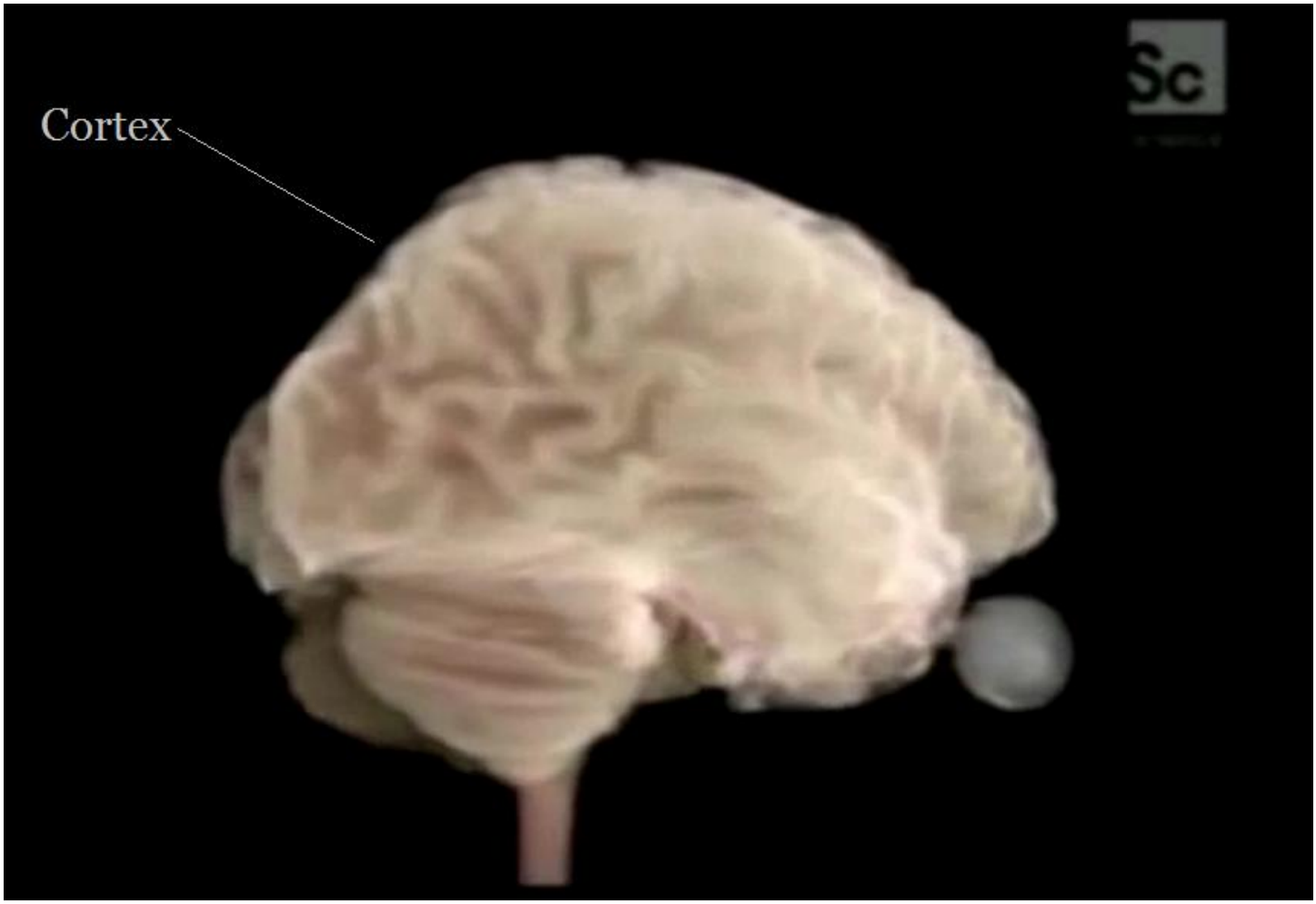
So this is about Chemicals happening inside our Brain bringing, giving rise to creativity.



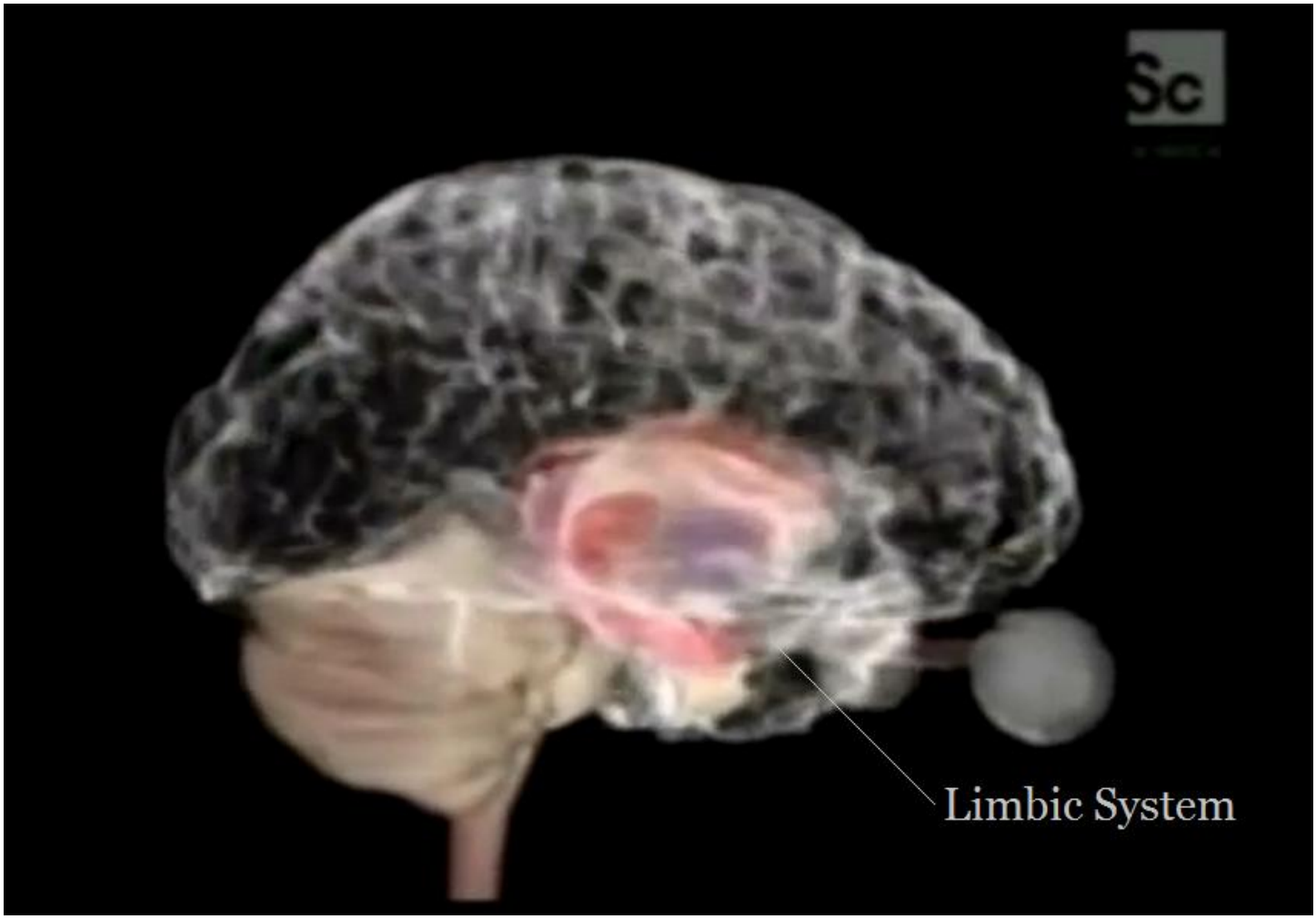
Because for this series my head was scanned by an MRI machine; therefore, what you're seeing here is actually my brain.



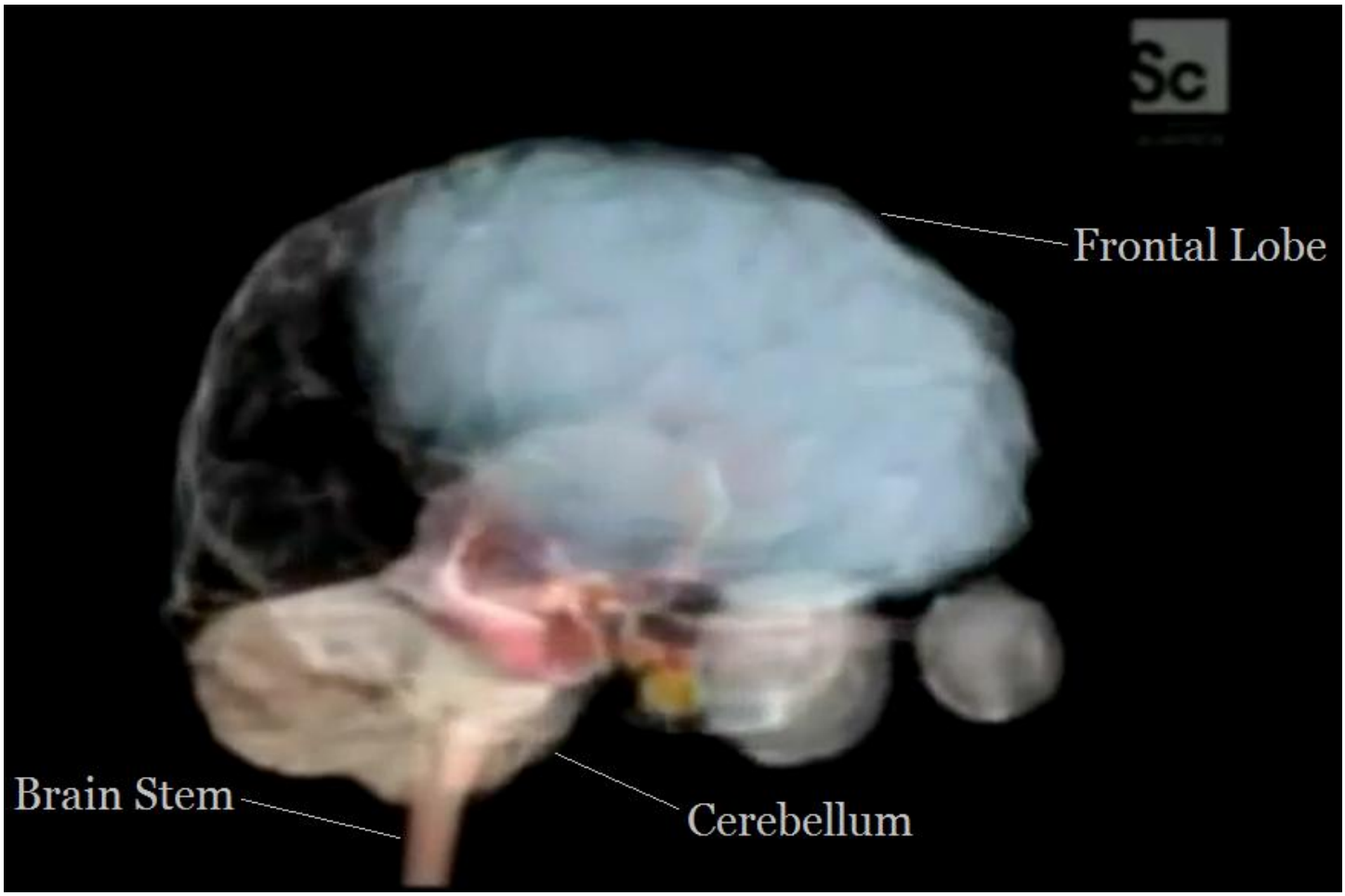
My spinal cord ends in the brain stem above which you could see the chunk of my cerebellum.



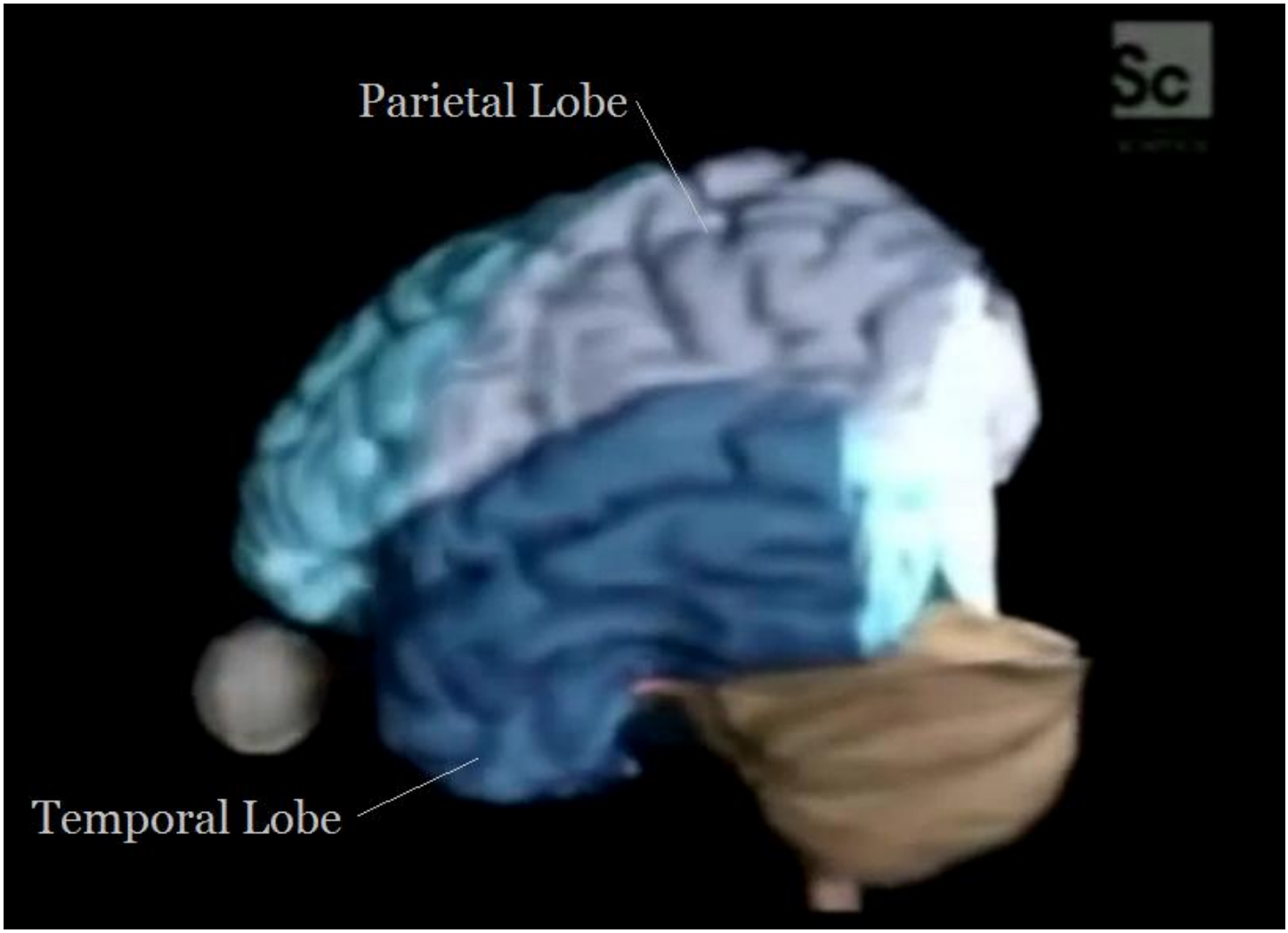
Further up the cortex where consciousness is located.



Under the cortex is my limbic system, the site of my feelings.



After the frontal lobe is the cortex, come all ideas, plans, complex languages, and my conscience.



Half of my temporal lobes manage my long term memory and tell me who I am.

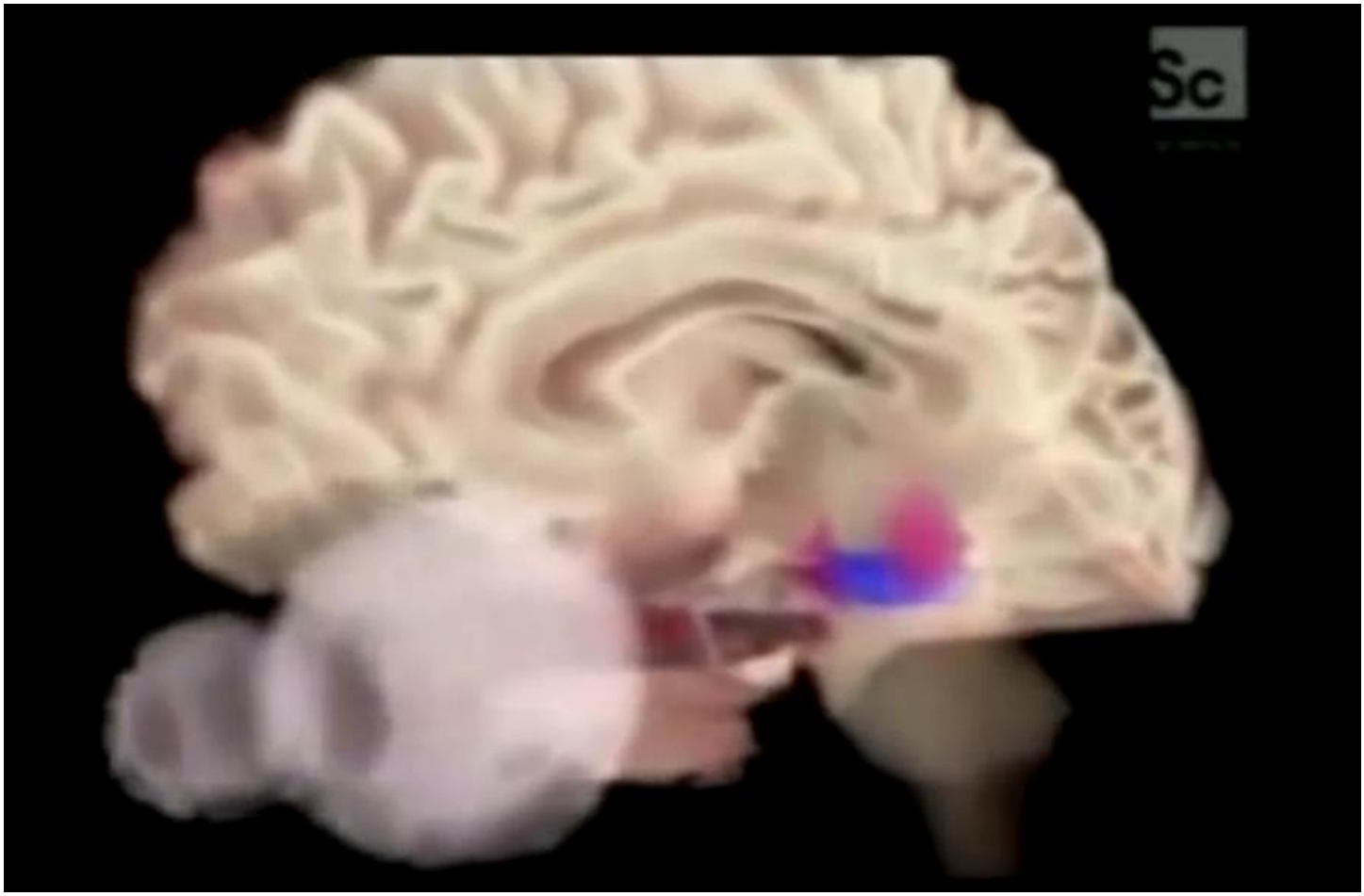
The parietal lobes coordinate a specific movement and my perception space.

The main temporal and parietal lobes analyze what I see and what I hear.

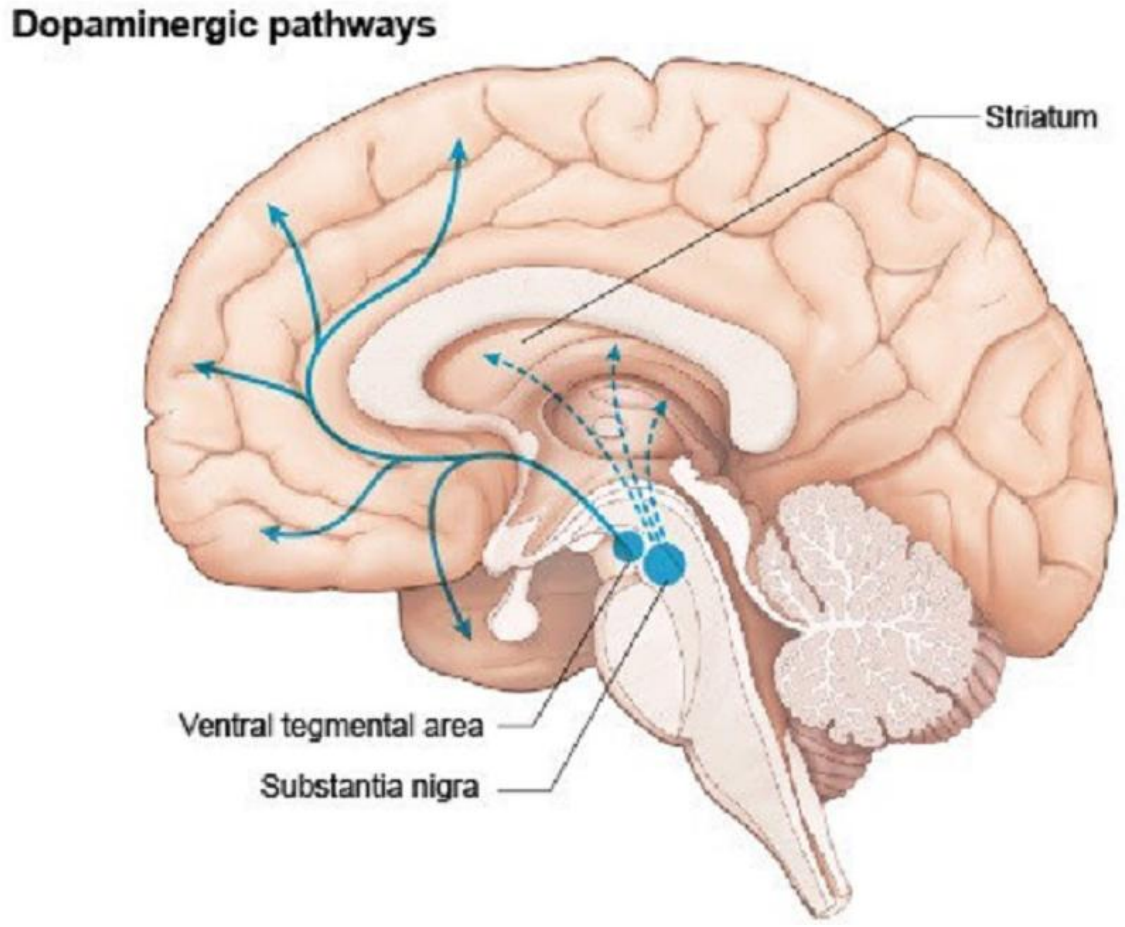
Neuroscientists have discovered is that creativity is mainly a function of the neuronal networks in the frontal brain. And that these networks strongly depend on the stimulant called Dopamine. The higher the Dopamine level in the networks of the prefrontal cortex, the more creative people are.

This can be quite easily explained by the fact that the networks of the frontal brain have access to our long-term memory, which is actually located at the back of the brain. This means that ideas, notions that were previously unrelated are now brought together in the state of exaltation. Ideas are now being thought that were never thought before.

My brain works exactly like yours.

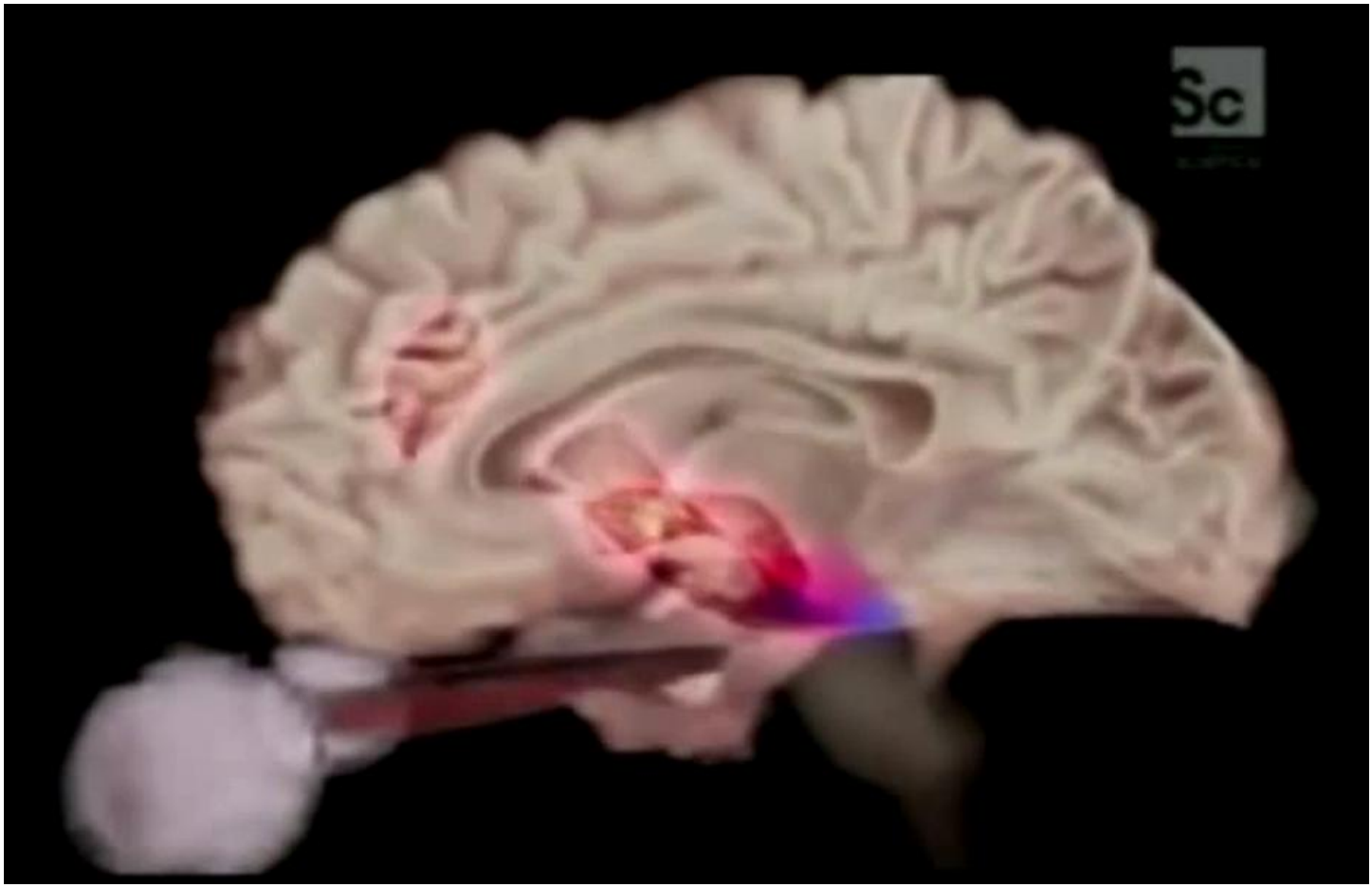


Very deep inside my brain stem, there are two structures which spur on the creative centers with a chemical pick me up, dopamine. The more dopamine they pour out the bubblier and more active I get. The withdrawal of dopamine on the other hand makes me dull and lack drive.

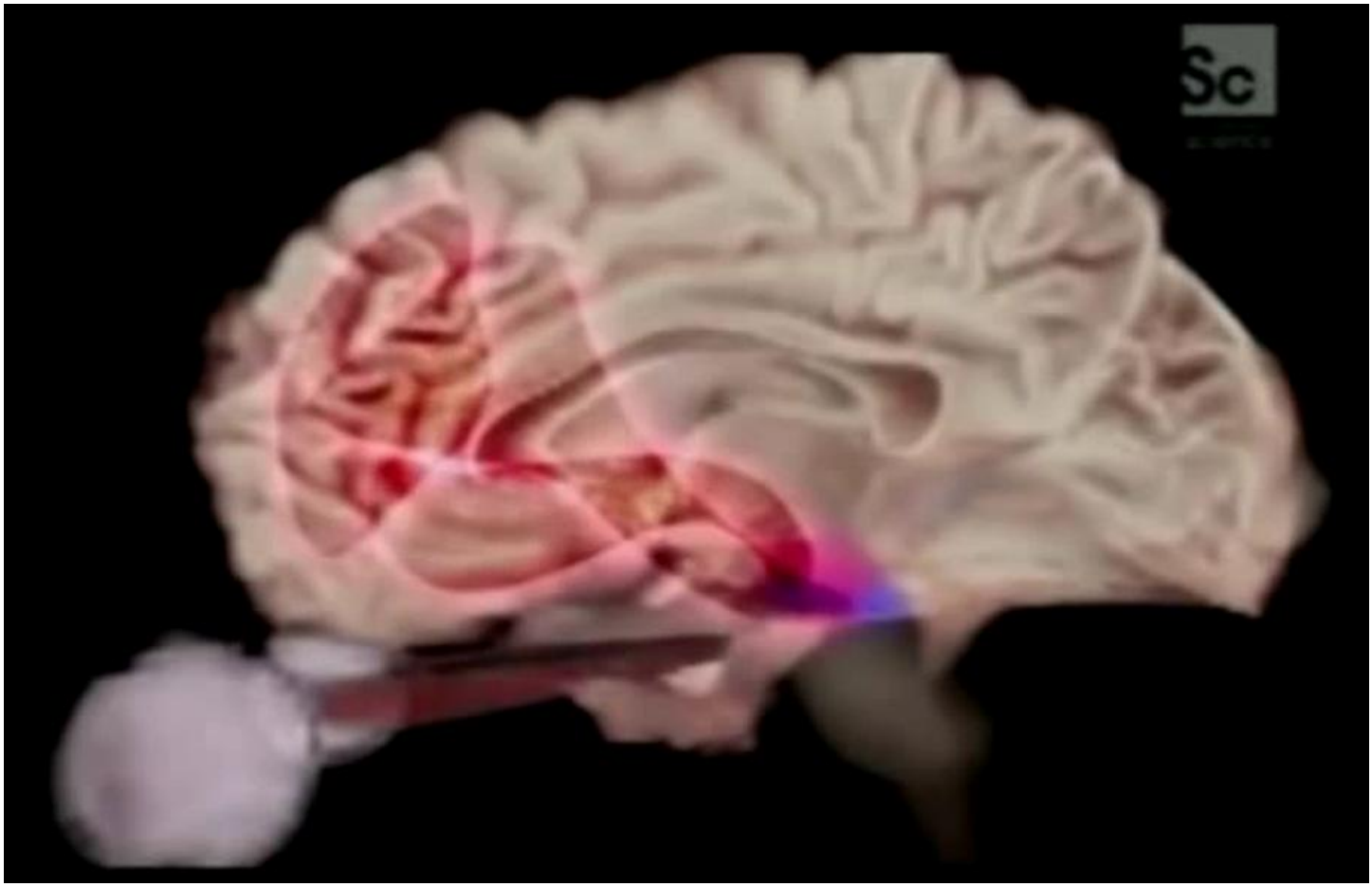


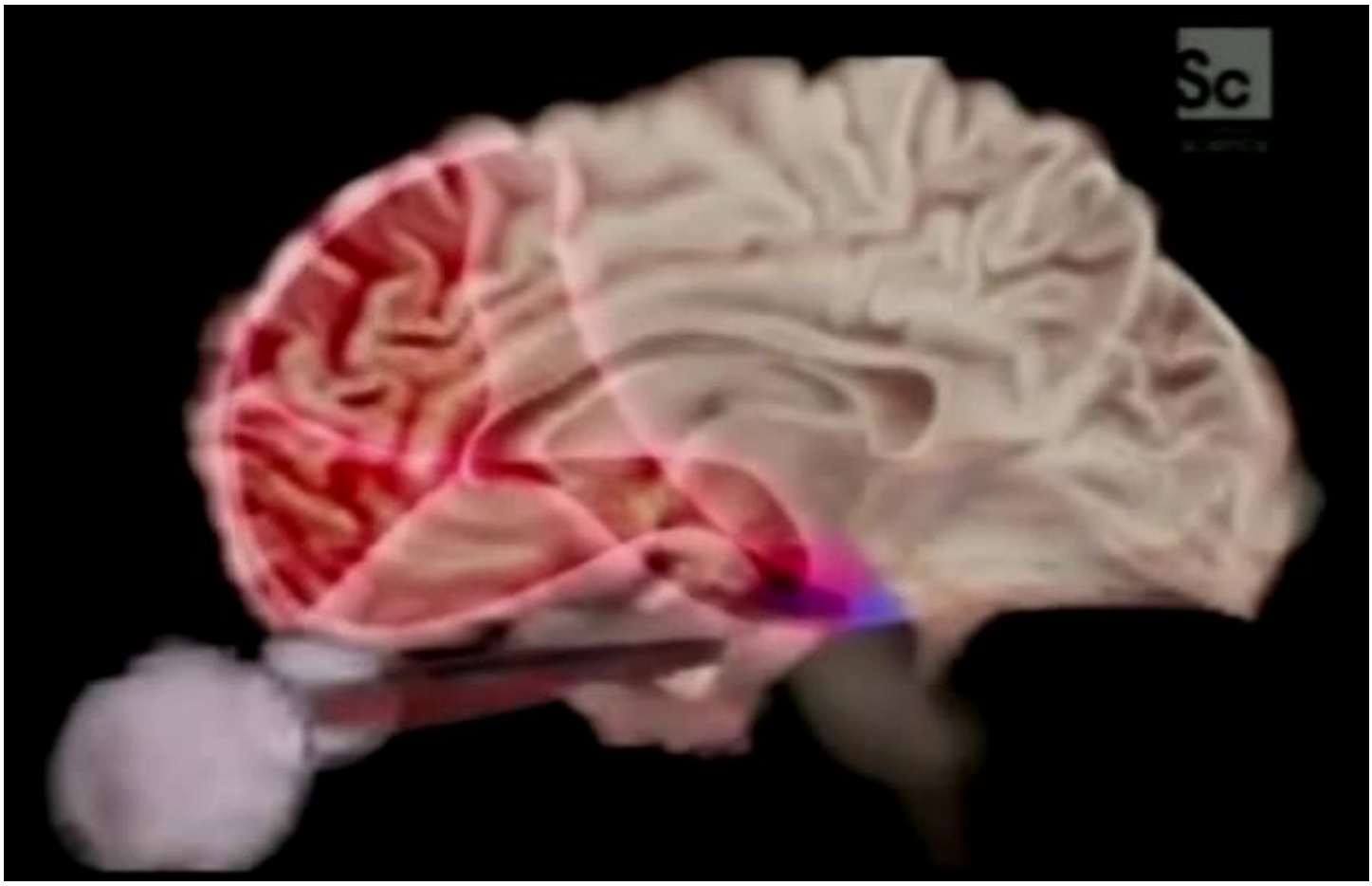
These two structures; therefore, use one single transmitter to determine my creativity and my personality. And yet I didn't even know their names until now: the Substantia nigra and the Ventral tegmental area.

This ventral tegmental area, this is very interesting, it's also the system that registers rewards. It pulls out dopamine every time the reward is expected

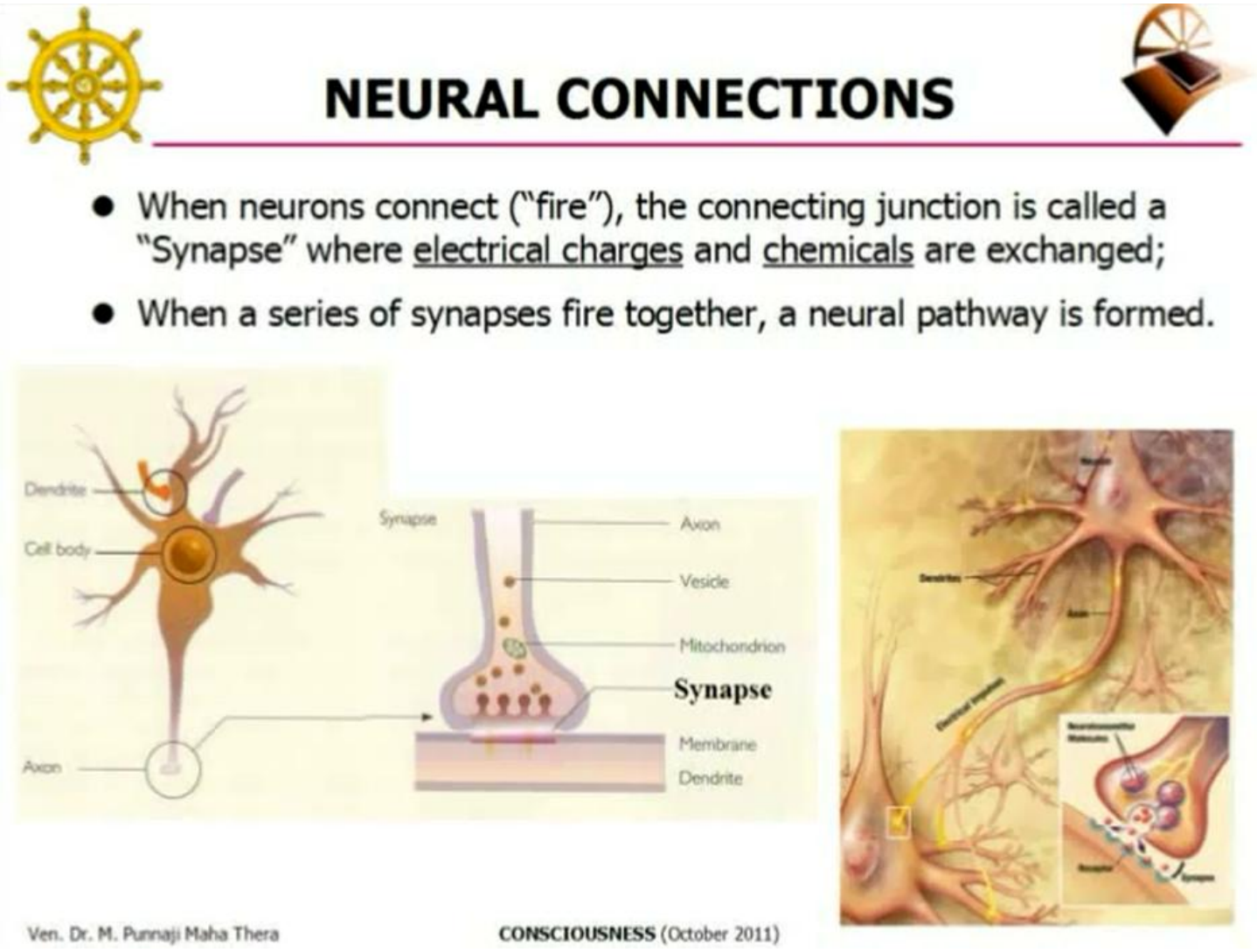


And creativity always shows up when a reward is expected, whatever nature it might be, that is when we have the dopamine surge.





If I am in danger, and I am very creative, I start to think, "How can I get out of this?" Or I want the noble prize, and I think, "How can I get it?" Or I want to earn lots of money or I want to compose a beautiful symphony. This is when we have a dopamine surge according to our different talents, and this is what gets my network started to do things they've never done before.



Dopamine is a very important neural transmitter. And we should be taking foods and exercising activities that help stimulate the release of dopamine. The reason is that if we suffer from a deficit of Dopamine, we actually end up acquiring Parkinson's disease. So in other words, if you don't have enough Dopamine in your brain throughout your life, it's very likely as you grow old you will suffer from Parkinson's disease.

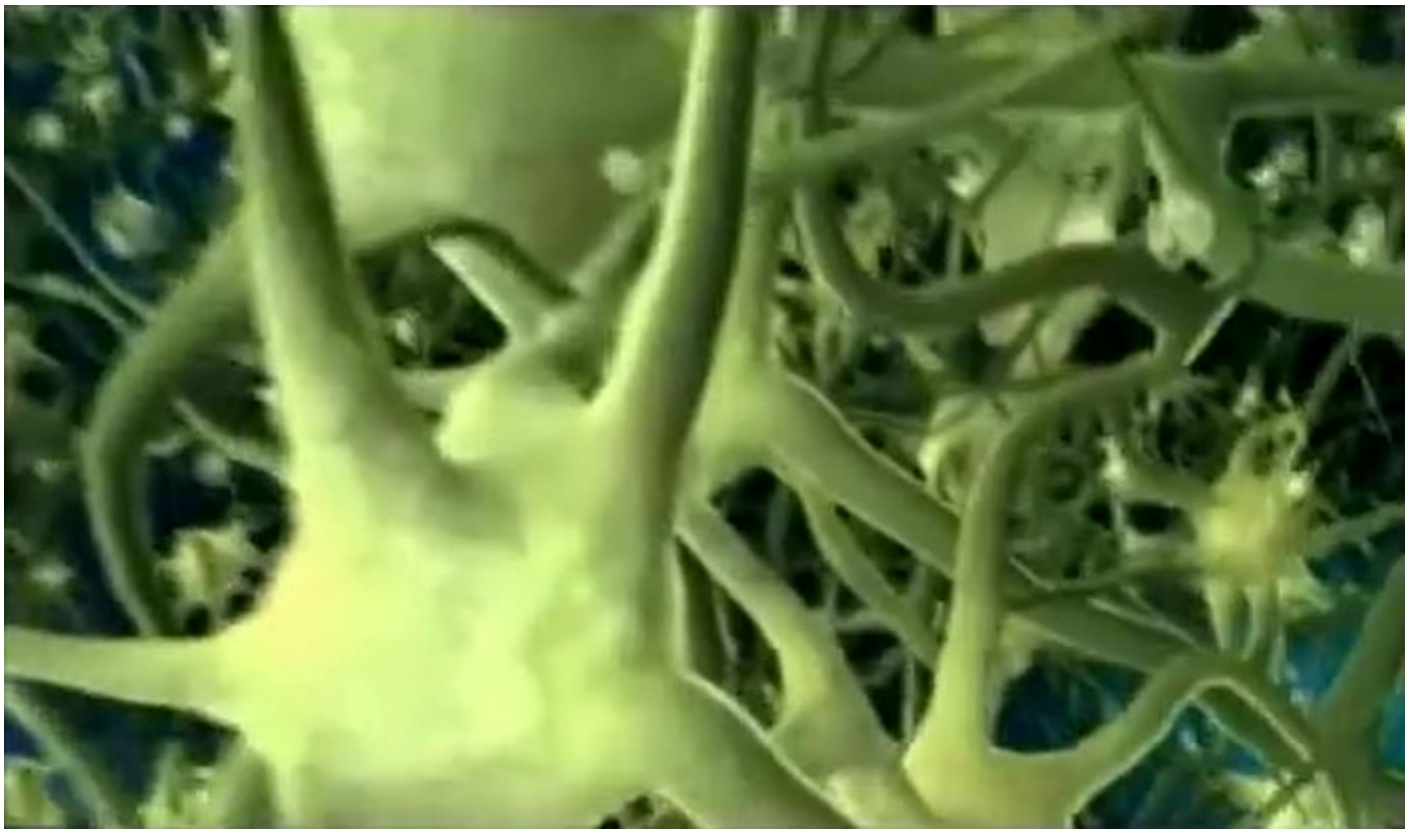
Now we talked about the brain cells connecting with one another.

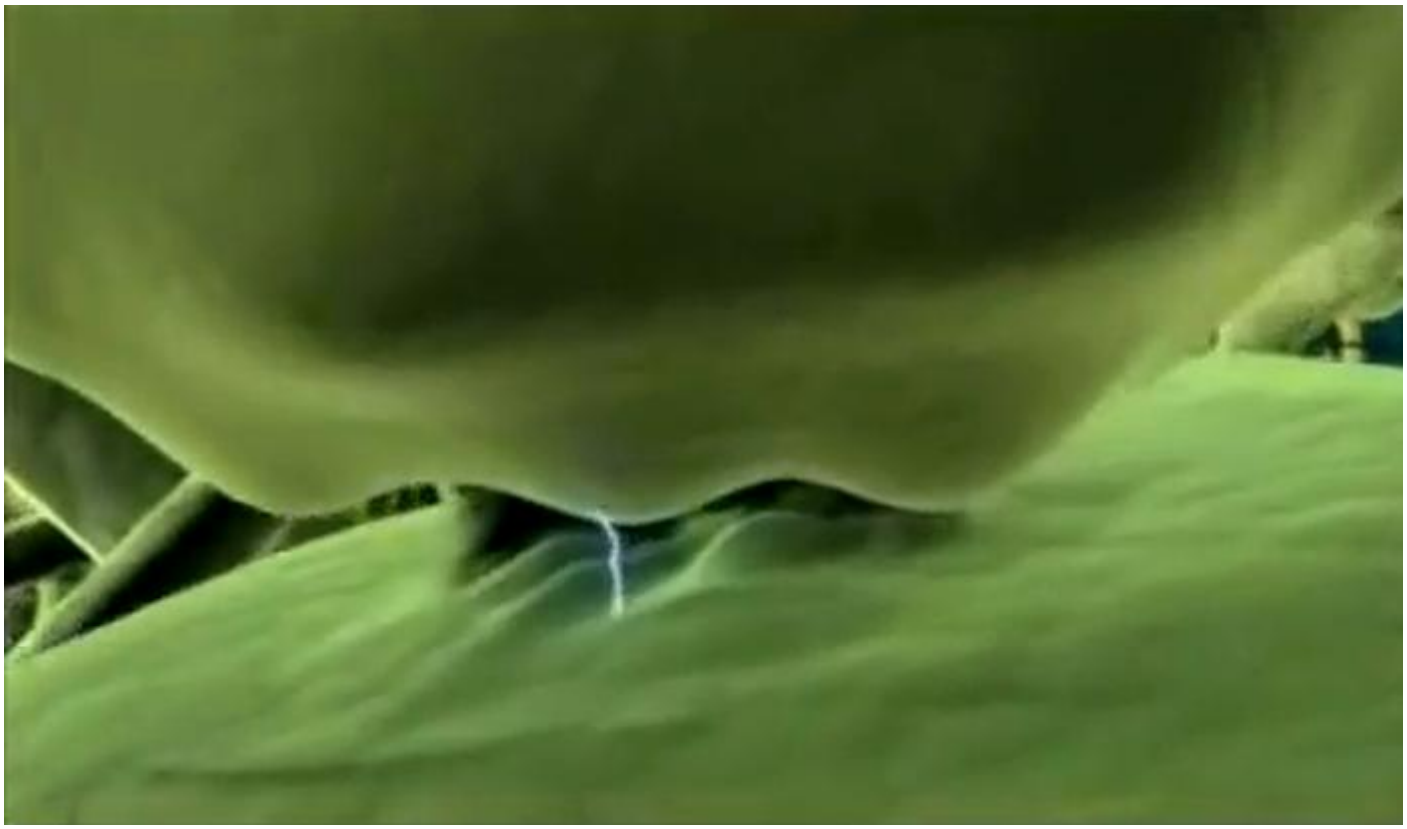
We're not trying to teach you neural science, but it is very important to understand two things happen when brain cells connect: electrical charges and chemicals are exchanged at the point of connection, which is called synapse.

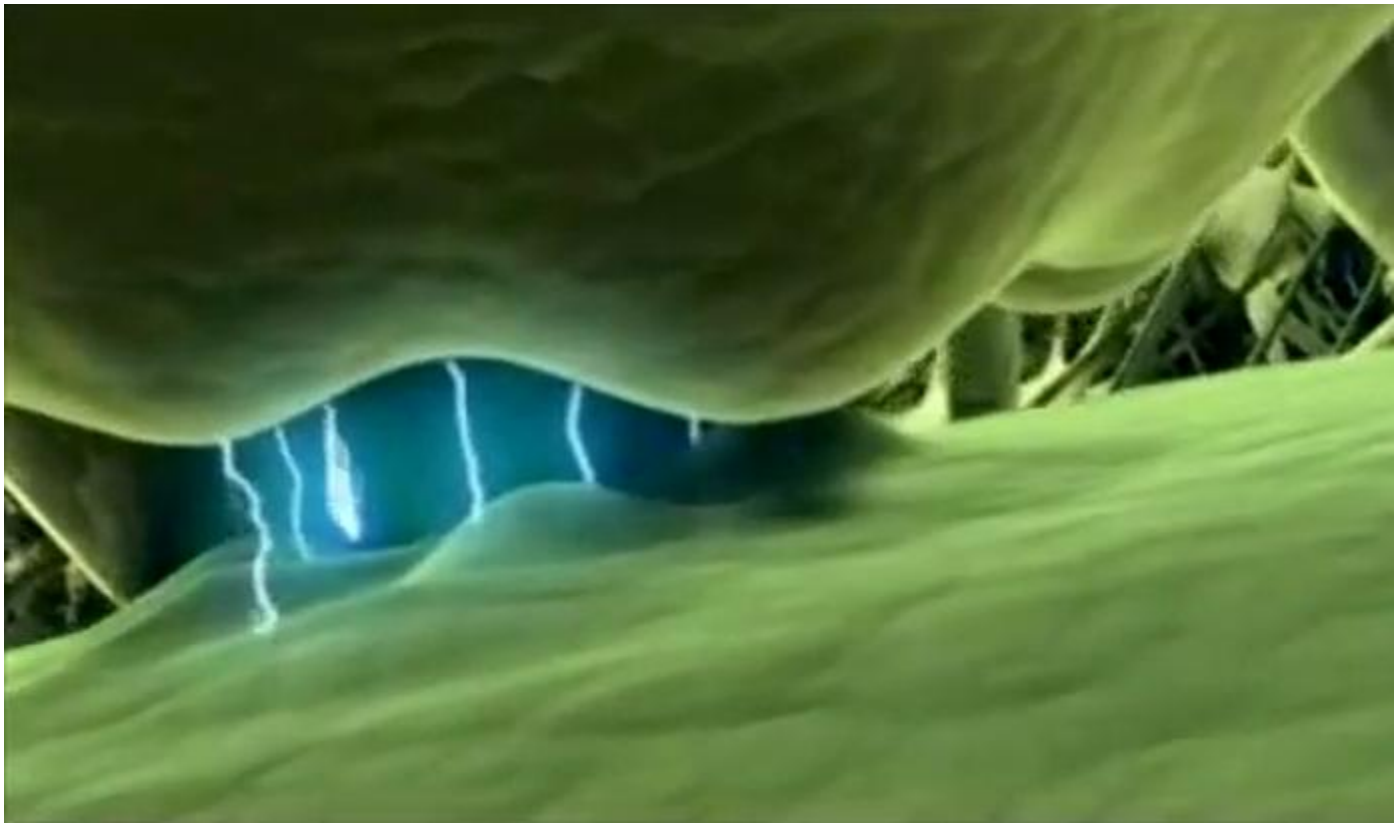
And when a series of synapse fire together, a neural pathway is formed. So a neural pathway basically represents one thought.

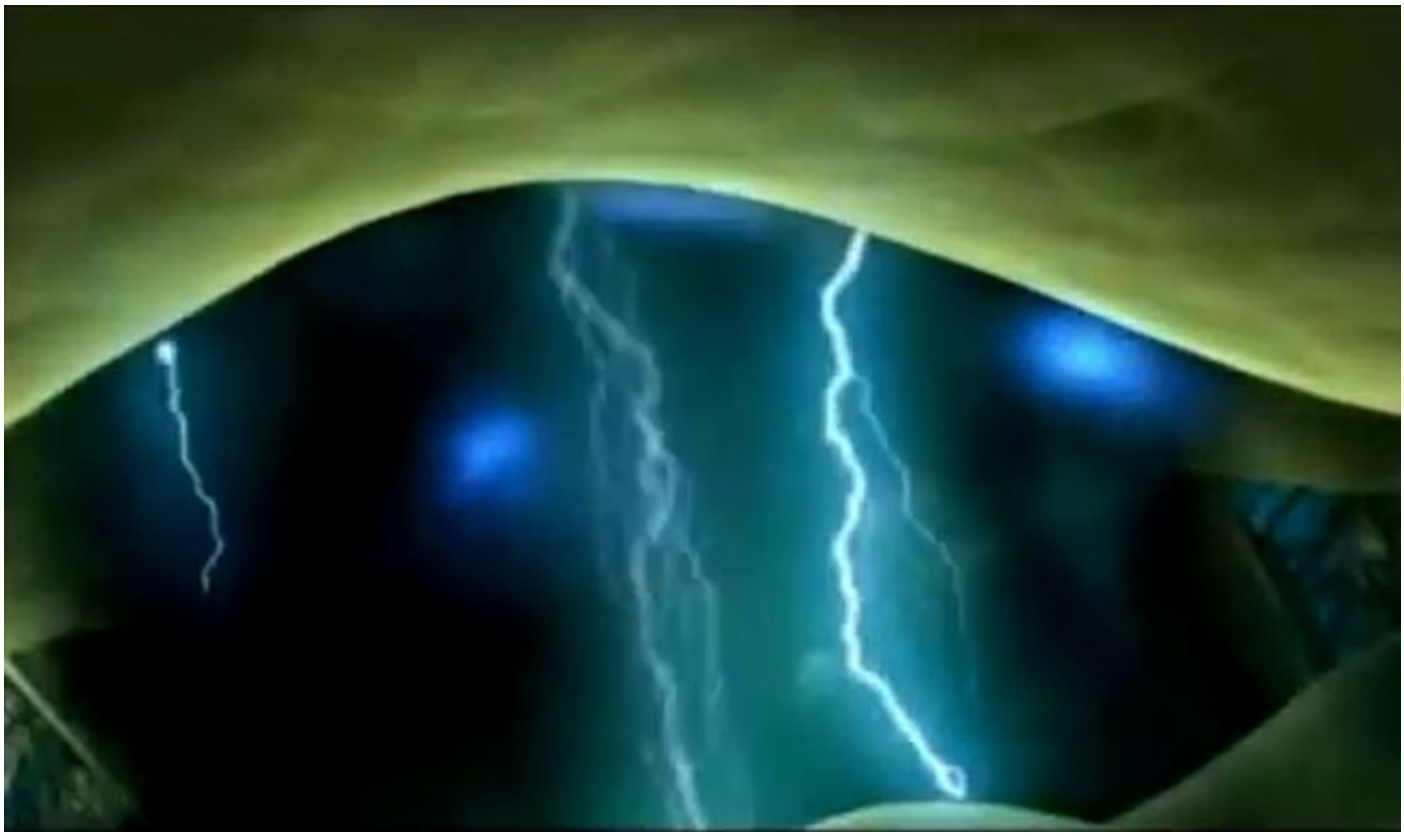
When you think of one thing, thousands of brain cells fire across these synapses, electrical charges as well as chemical.

What you've seen earlier on is the example of chemicals. What we will see now is how the electrical charges happen in the synapse.





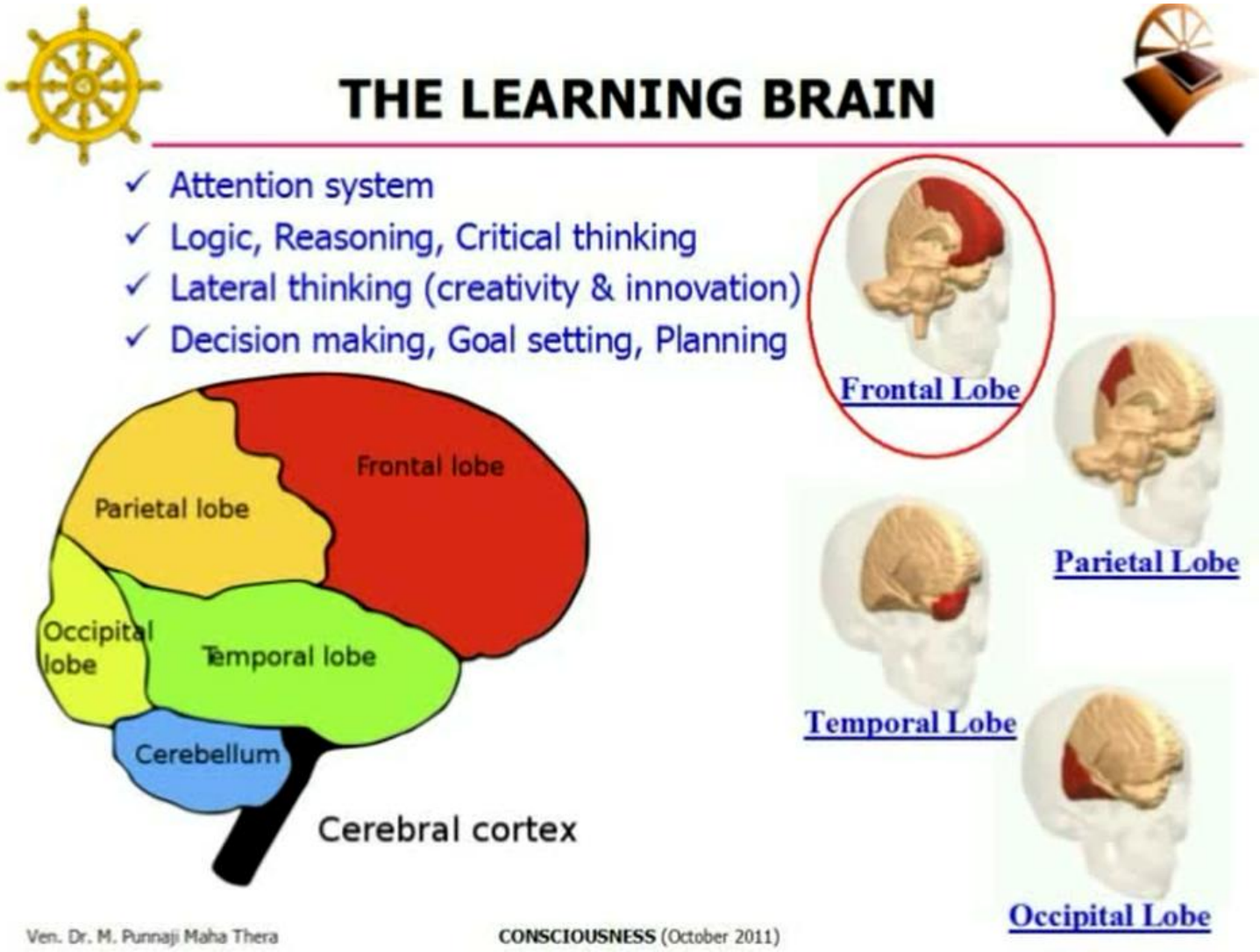




Our brain has an astonishing hundred billion neurons or brain cells, all connected together.

Learning is about creating and strengthening pathways through these neurons, the impulses of electricity.

But between each and every connection in our brains, there is a tiny gap called a synapse. For any of us to learn something new, the electrical signal has to jump across this gap to continue its journey.



Well there's good news for everyone if you want to become more intelligent and improve the electrical flow in the synapse, take omega-3. And that is found in a lot of fatty acids, a lot of fish like tuna, salmon, cod, and so on. Unfortunately for the vegetarians you will miss out on this.

Now the part of our Brain that actually defines our Intelligence is really this learning Brain and the part that helps us think critically is the Frontal Lobe. We've covered that last week, but I think I want to highlight a couple of very important things. We talked about intelligence, this is actually a study done by the University of London, looking at all the professions in United Kingdom, trying to determine in "What profession can a person's intelligence grow?" In other words, "Which profession helps a person become more intelligent on the job?" You'll be surprised; take a look at and see which profession, actually of all the professions they studied, which profession helps that person becomes more intelligent on the job.


Discovery
Saintis
di Unverisity College, London...

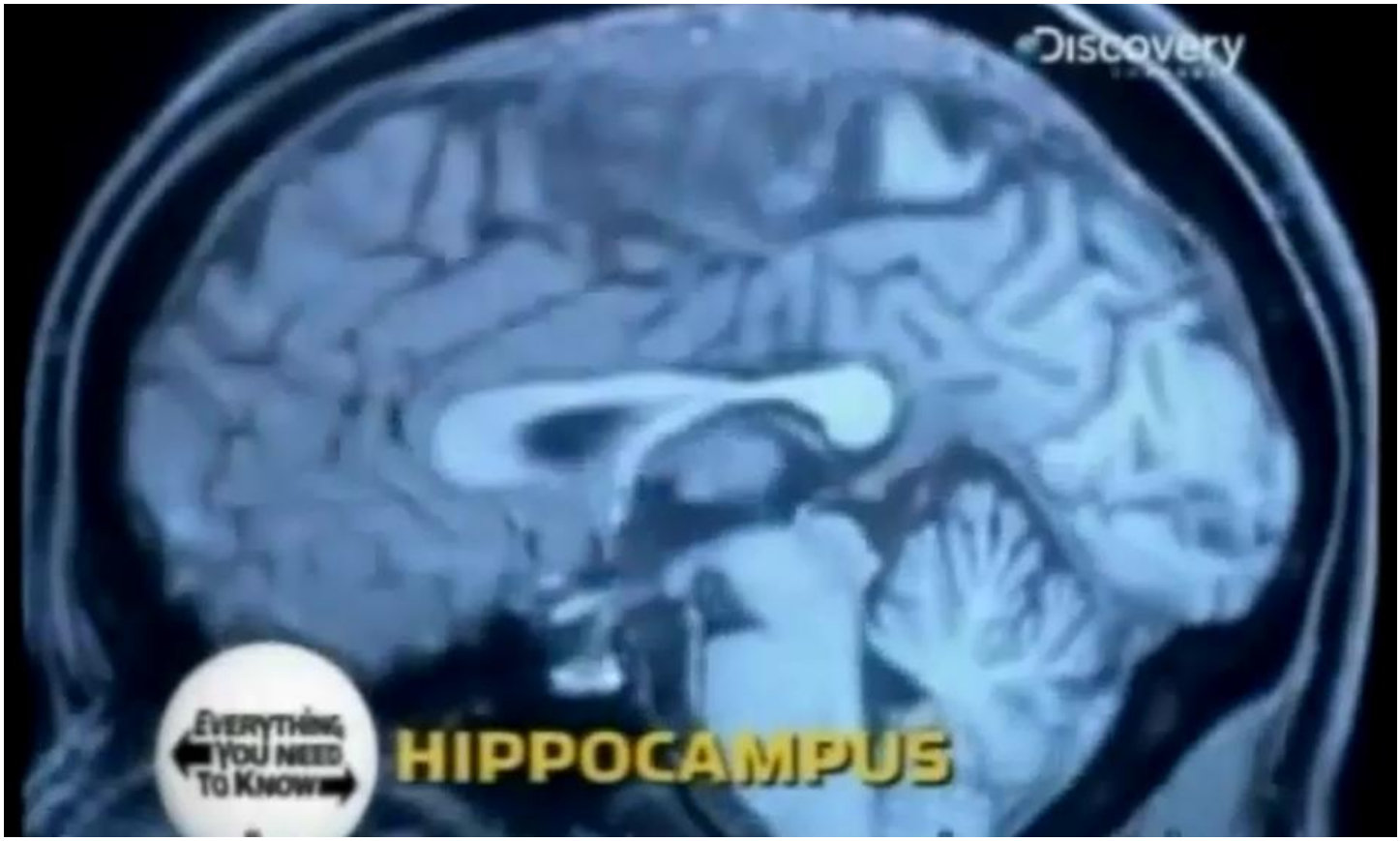
Want a bigger brain? Then you may want to become a London cabbie. Scientists at London's University College have found that cabby's brain become larger and more efficient the longer they stay on the job.


Discovery
Dr. Stephen Juan
Author, The Odd Brain
Anda
boleh melatih...

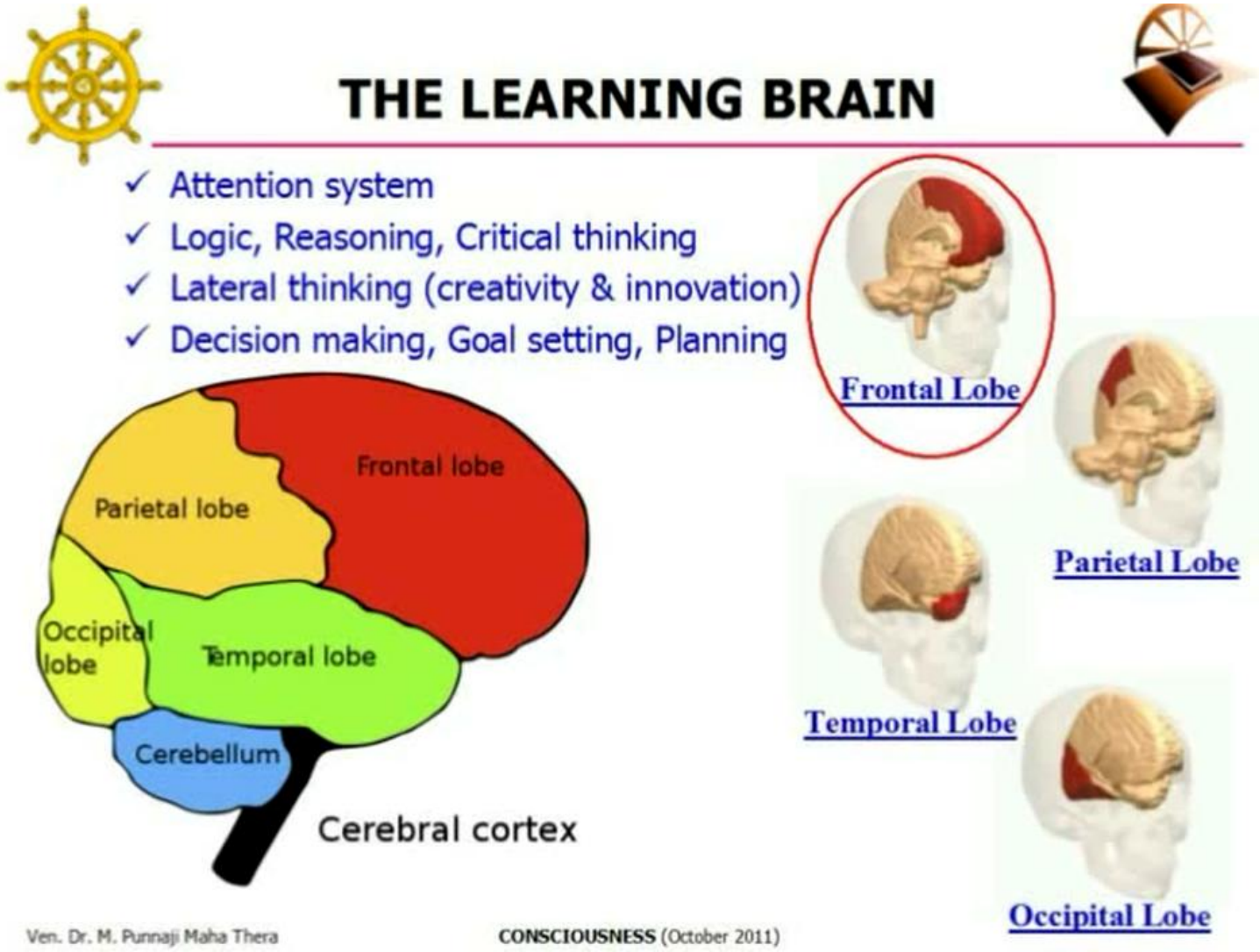

Discovery

You can actually train the brain to function better. It's just like an athlete to stay in form. You've got to work out your brain to keep the brain in shape.

Cabby candidates have to train for 3 years on London's winding roads and passing intense test to get the full-time job that means memorizing thousands of street names and locations.



Not surprisingly most of the growth takes place in the hippocampus, the part of the brain responsible for memory and navigation.

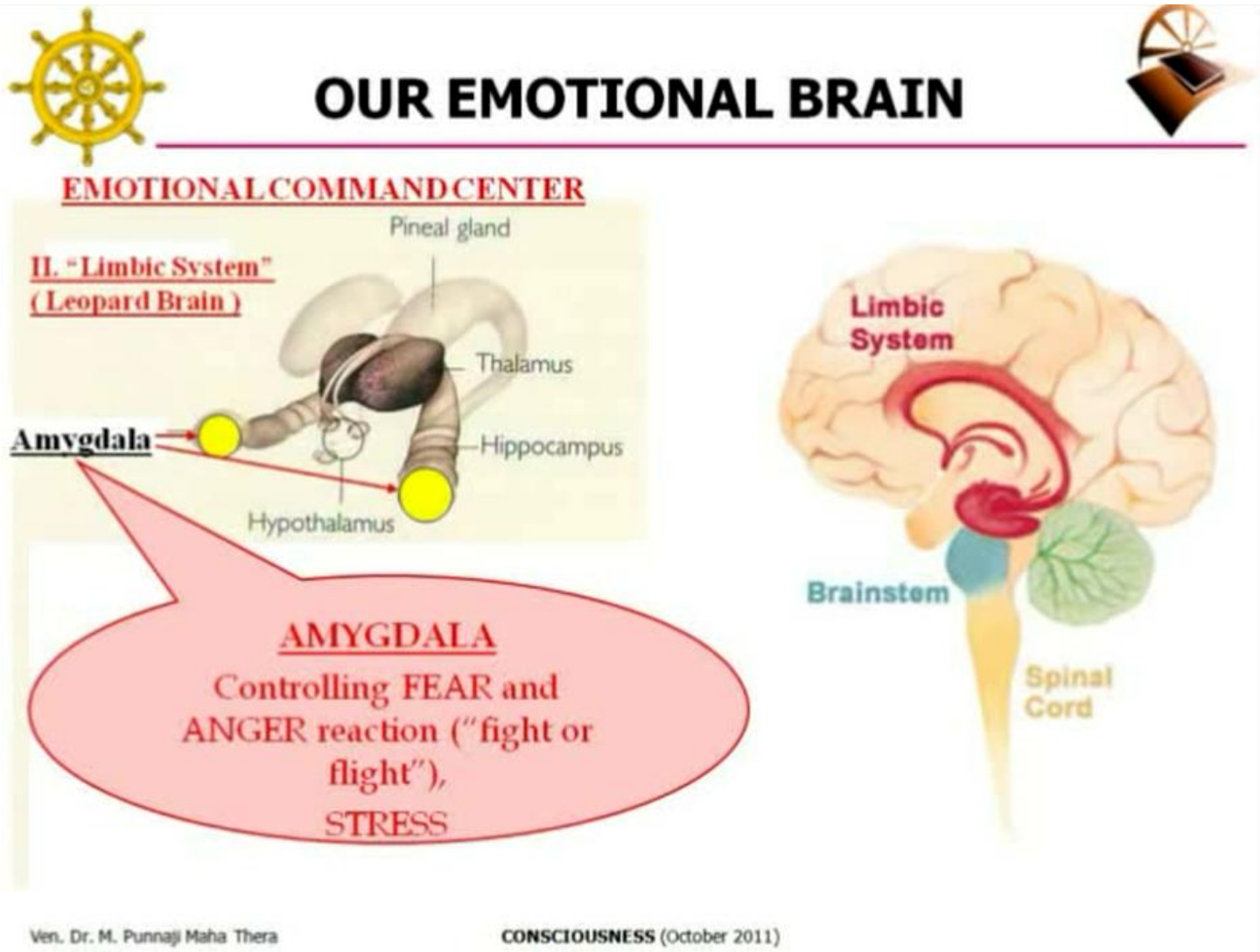


Because London is a very old city, older than all the cities in the United States, it's all the roads have back lanes and so forth and so forth. So a cab driver is required to memorize a lot of these back lanes and try to figure out when there is a traffic jam at a certain area, “Which is the fastest way?” Because they do that all the time, they are continuously exercising their Frontal Lobe, the critical thinking, and the logic and reasoning of their Frontal Lobe, including Attention System, decision making, goal setting, planning. They're constantly doing that every minute of the day when they're on the job. So that actually helps a person become more intelligent. So this is also something you can catch on; you can actually practice this by doing exercises that exercise your Frontal Lobe.

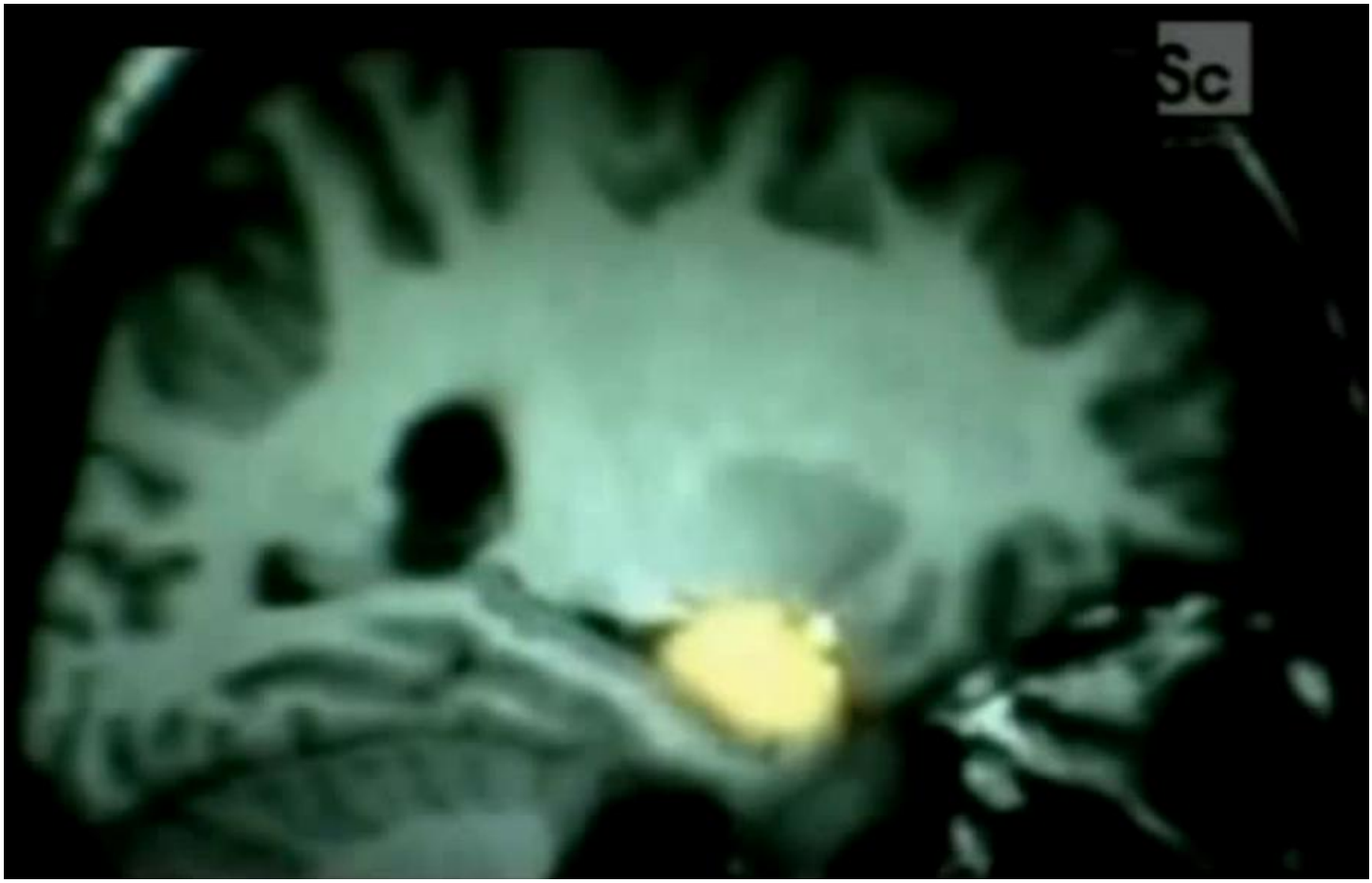
And one very important exercise you can do anytime, with the teachings of Bhante Punnaji, is meditation. When you meditate you are actually focusing all your thoughts on the Frontal Lobe, especially the part of the Frontal Lobe called the Prefrontal Cortex; you are exercising that.

Brain cells actually brain cells undergo one very important phenomenon, it's called use-it-or-lose-it, so if you don't use your brain cells, the connections die off and then you become dumb. So in order to stay alert and become smarter, continuously use your Frontal Lobe, through focusing your Attention System, and you do that very well in meditation by this exercise called Introversion of Attention or Introspection.

Because Introspection can also help you with logic, reasoning, and critical thinking, so the meditation exercises that Bhante is teaching can actually help you become more intelligent.



Now we talk about emotion, and this is the emotional brain on the upper part here the Limbic System, but the most notorious part of course is the Amygdala. This is where it controls our fear and anger reaction, as well as our stress level. And it actually fires off a lot of Biochemical Response in your body. So let's take a look at what a fear response really is like in your Brain.

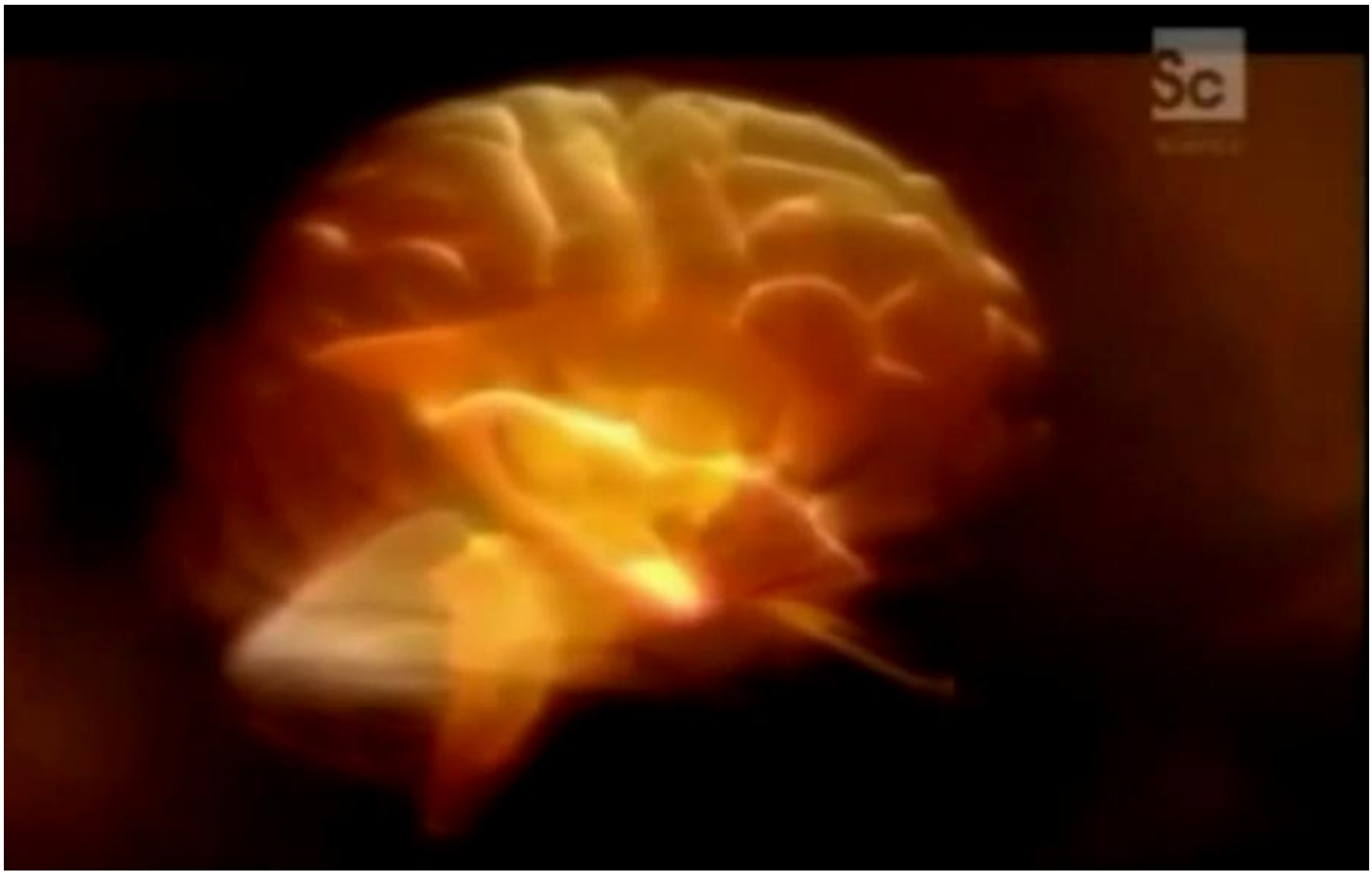


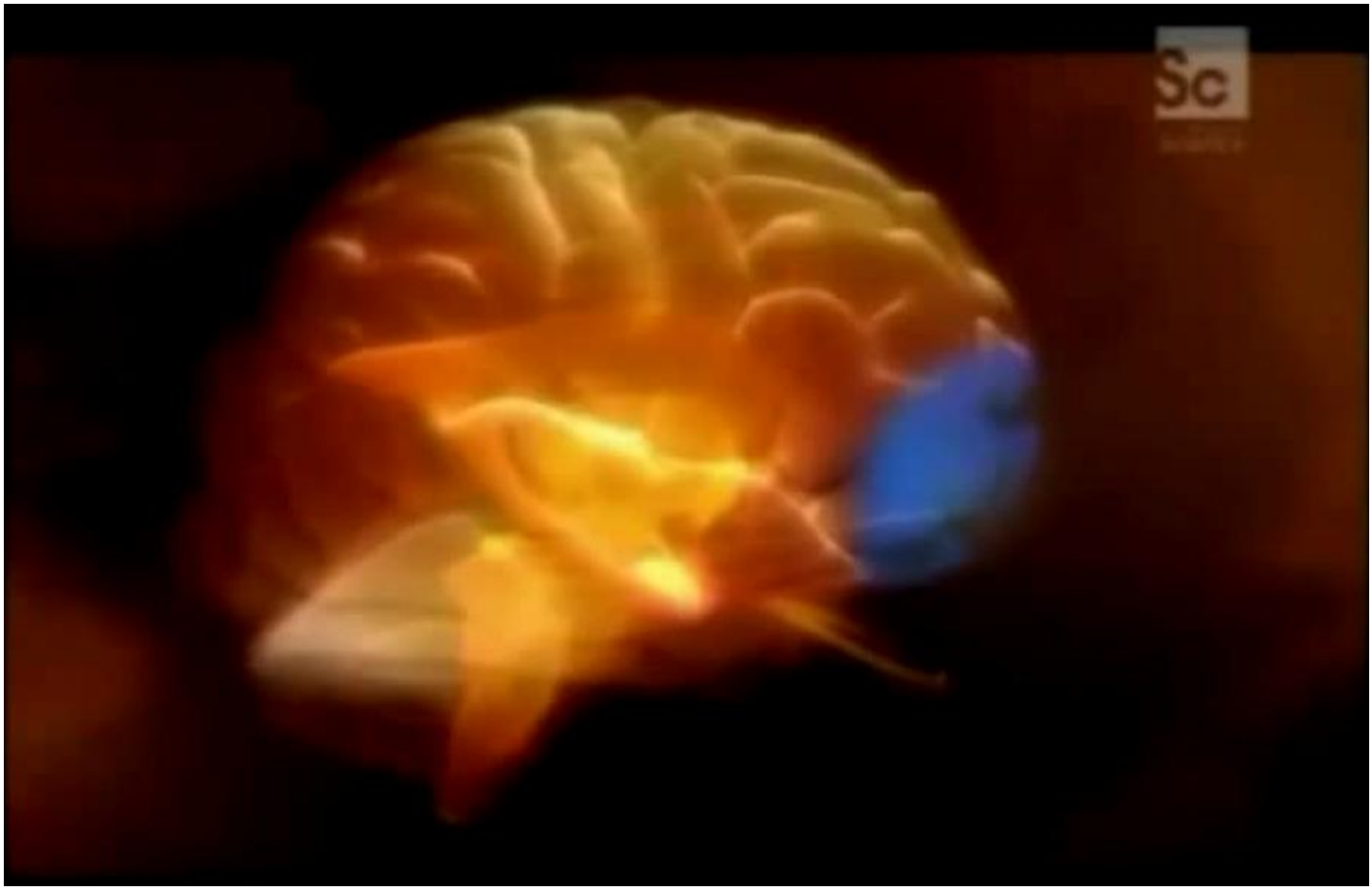
At Massachusetts General Hospital in Boston, scientists are examining the fear response, scanning the brains of people with and without post-traumatic stress disorder. As a series of expressionless faces are flashed in front of them. Hidden among the faces is a single image that signifies threat, a face frozen in terror. In that instance, one part of the brain in every test subject is highly responsive: the Amygdala.

The Amygdala is a small structure which cares a lot about threat and fear. If there's something that may be potentially harmful to us, it is a brain area, which gets activated very quickly and recruits other areas of the brain to try to deal with this unexpected circumstance.

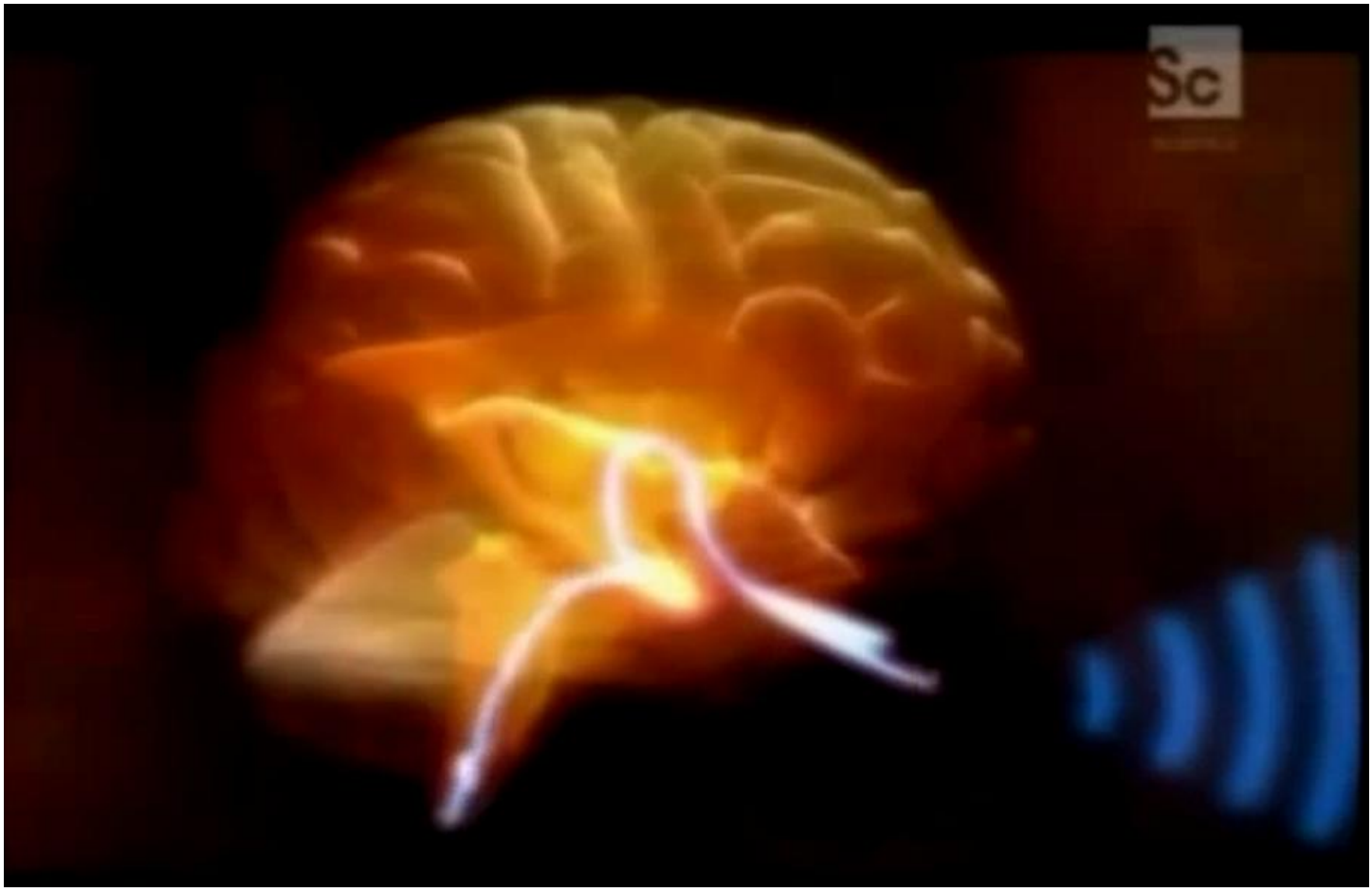
The Amydala sends outputs to the body, so that your muscles begin to tense, hormones are released, blood pressure goes up, and all of these are part of the protective response of the body designed by Evolution to help you stay alive.

Imagine you're walking down a path in the woods, and all of a sudden there's a curved object that looks like a snake on the ground. And you find yourself stopping with your leg resting above that object and you look down and see that it's simply a stick, so why did your leg stop like that.

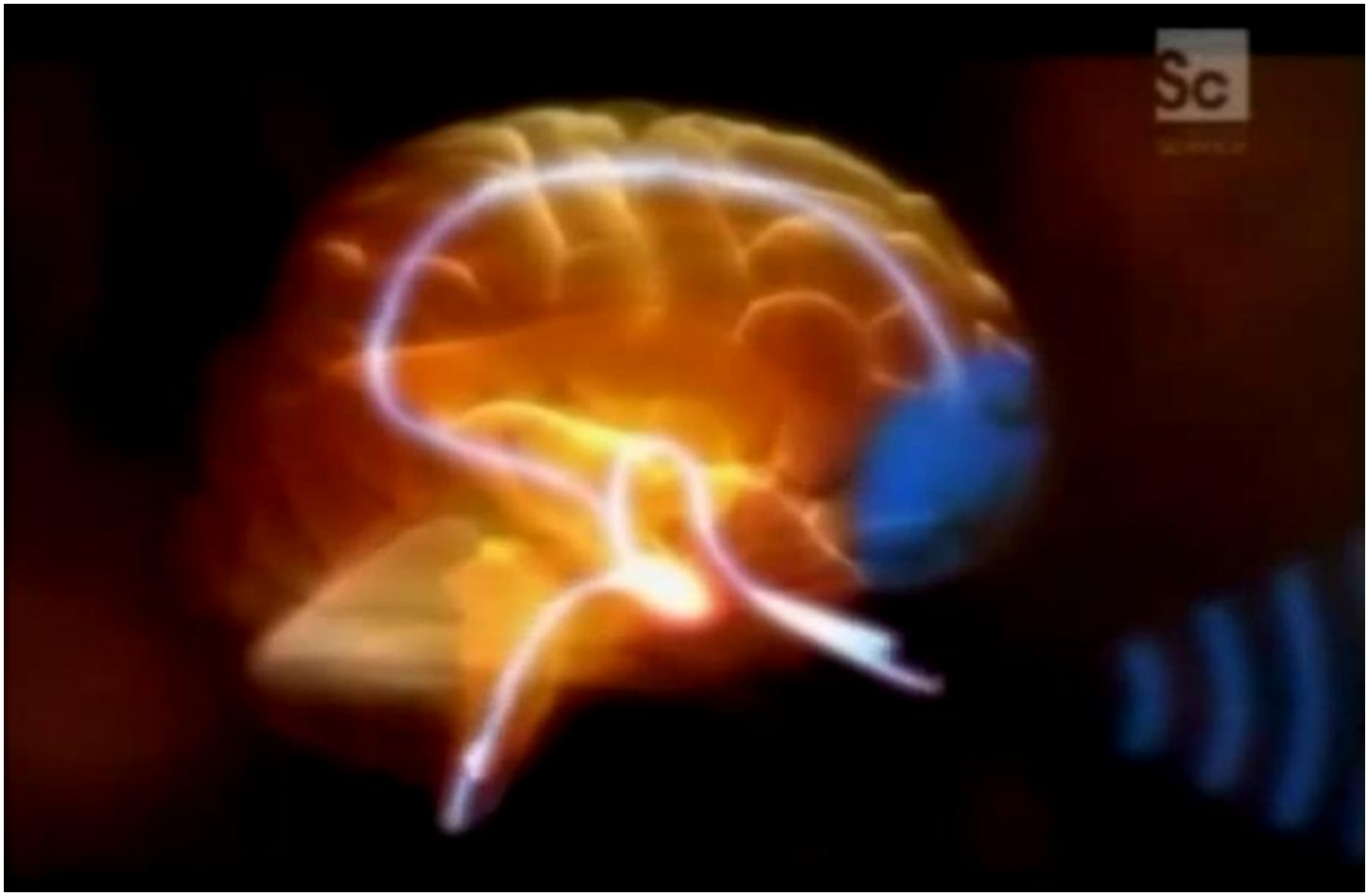




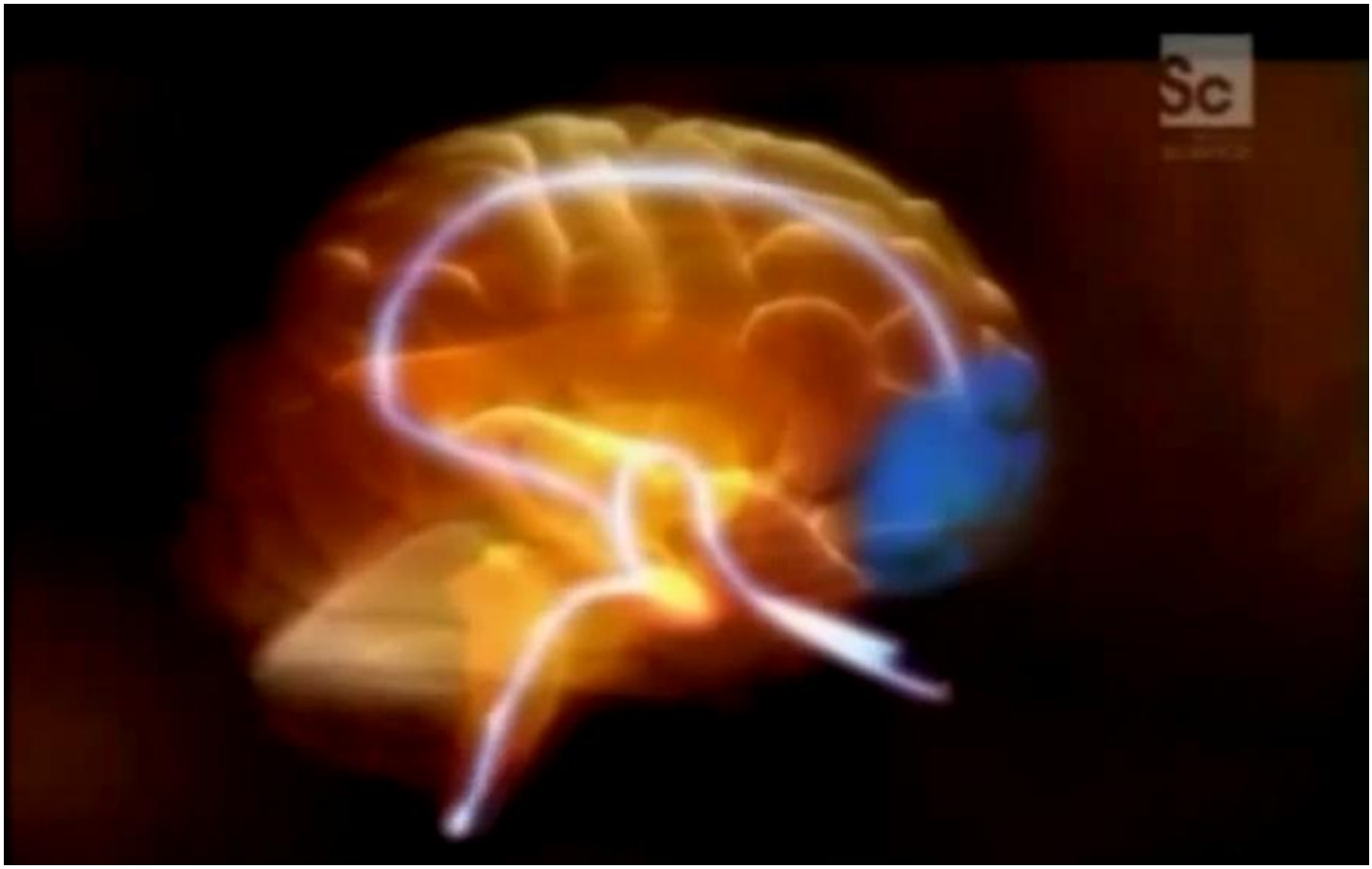
In the normal brain, the Amygdala acts like an early warning system, alerting us to danger. But the Amygdala does not act on its own, the frontal cortex, where we think and reason plays a crucial role.

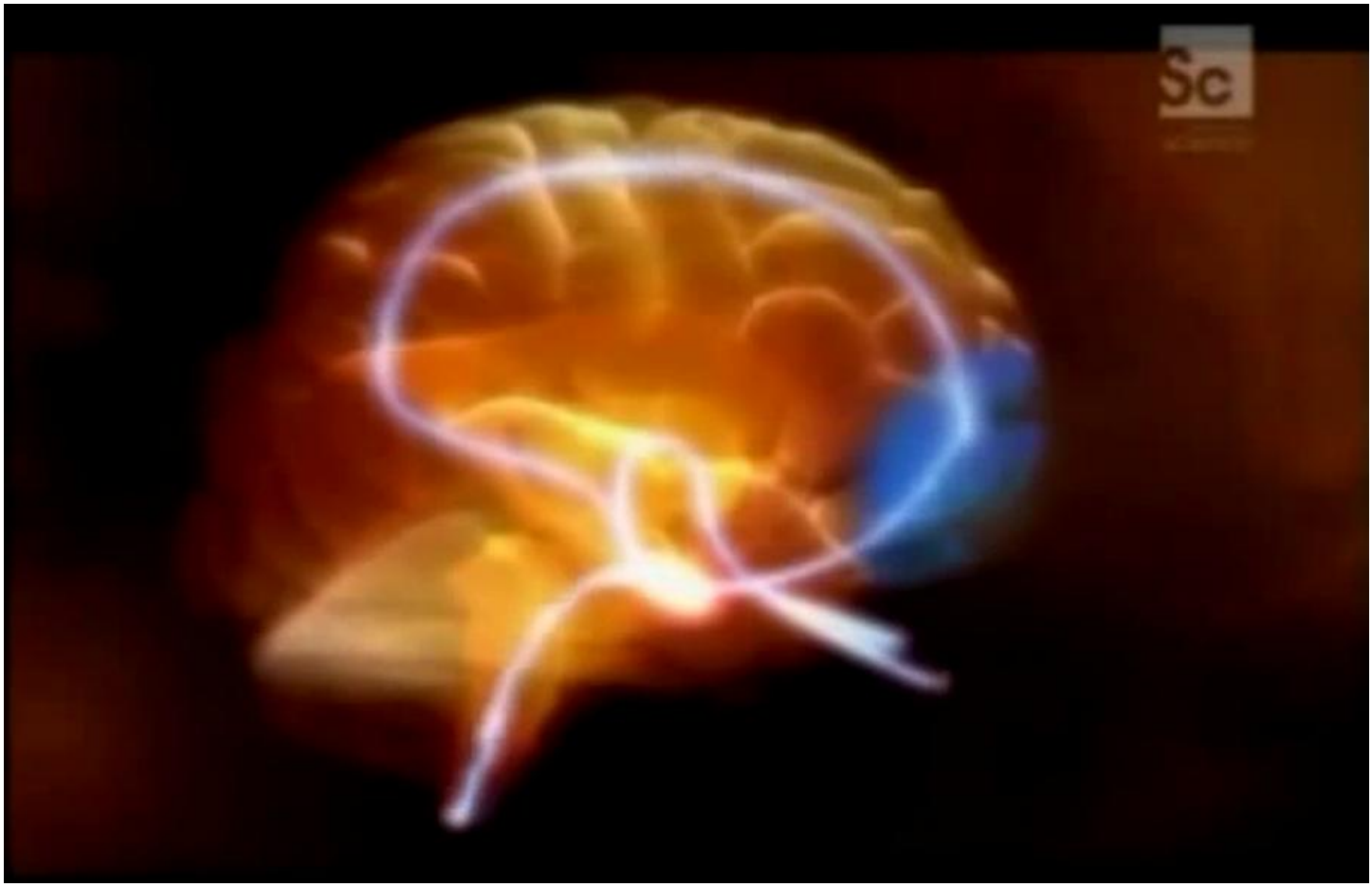


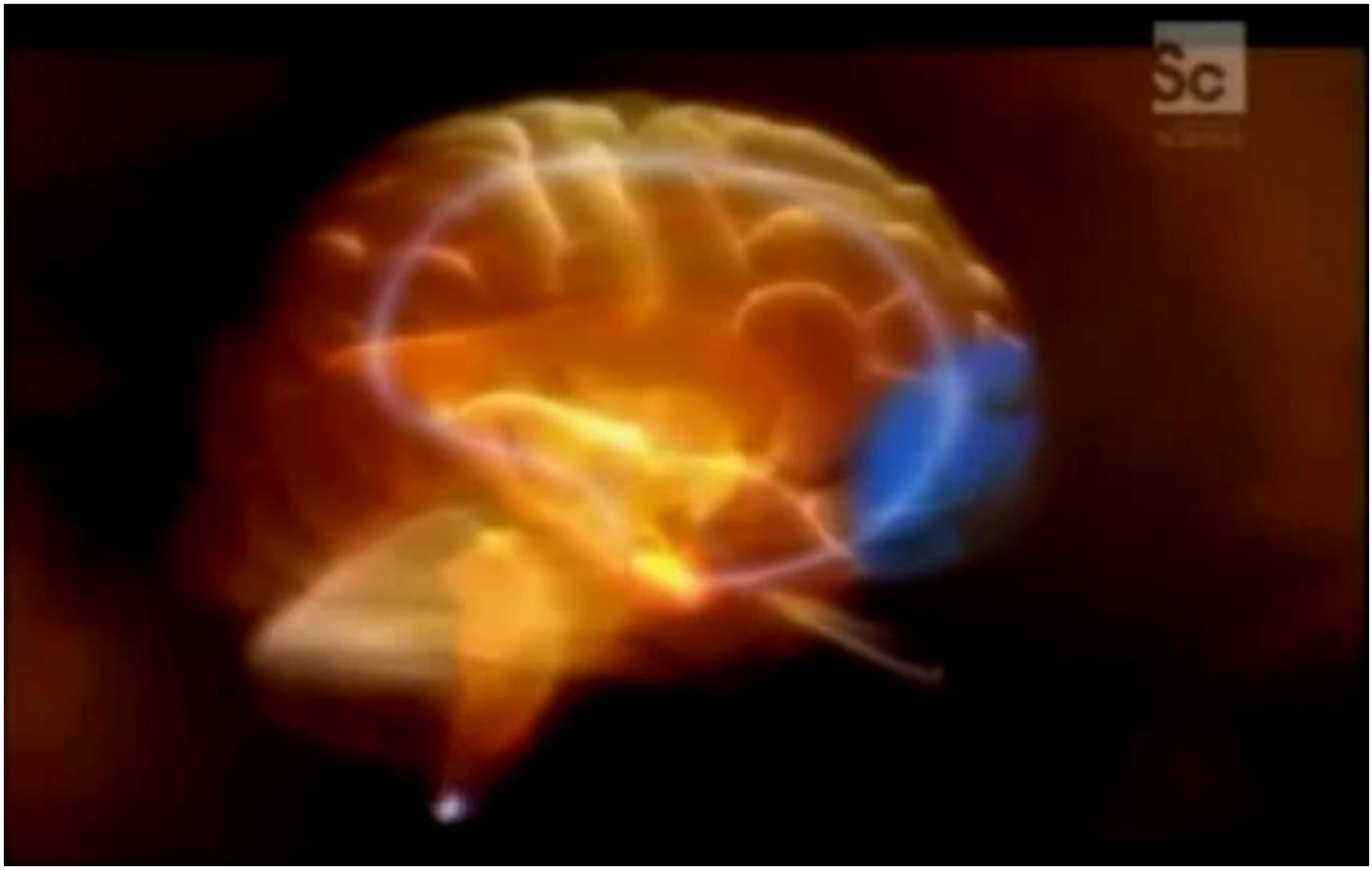
There are two parallel routes of fear processing in the brain, one will go directly to the amygdala; it's a quick-and-dirty pathway and trigger a fear reaction unconsciously.



But then as information slowly makes its way to the cortex, the cortex perceives the difference between the stick and the snake and says it's only a stick.



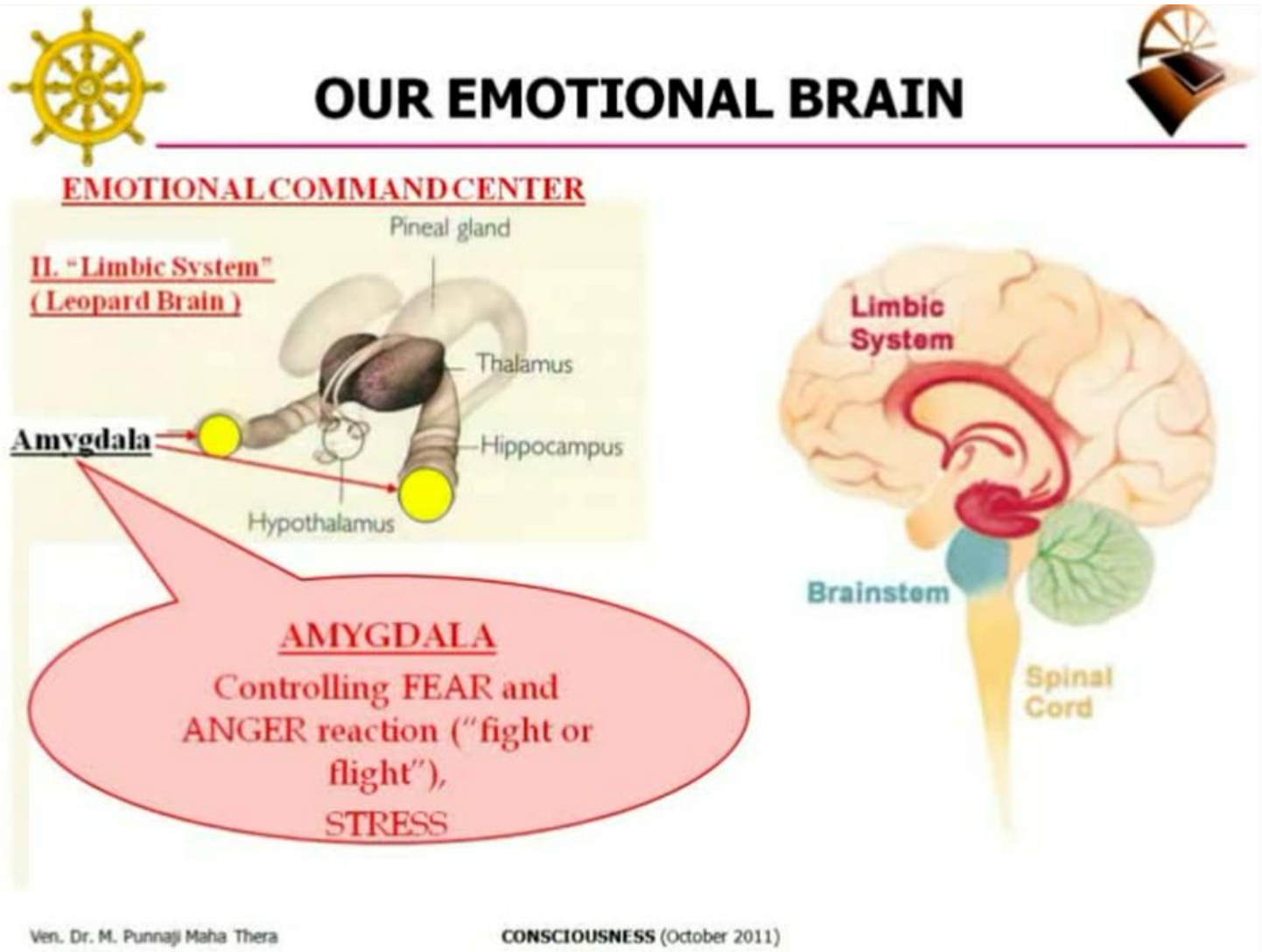




Once the discerning cortex has determined that there is no call for panic, it sends a message to the Amygdala quieting the fear response.

But in post-traumatic stress disorder, the cortex is held hostage by a volatile Amygdala. Thinking is hijacked by emotion.

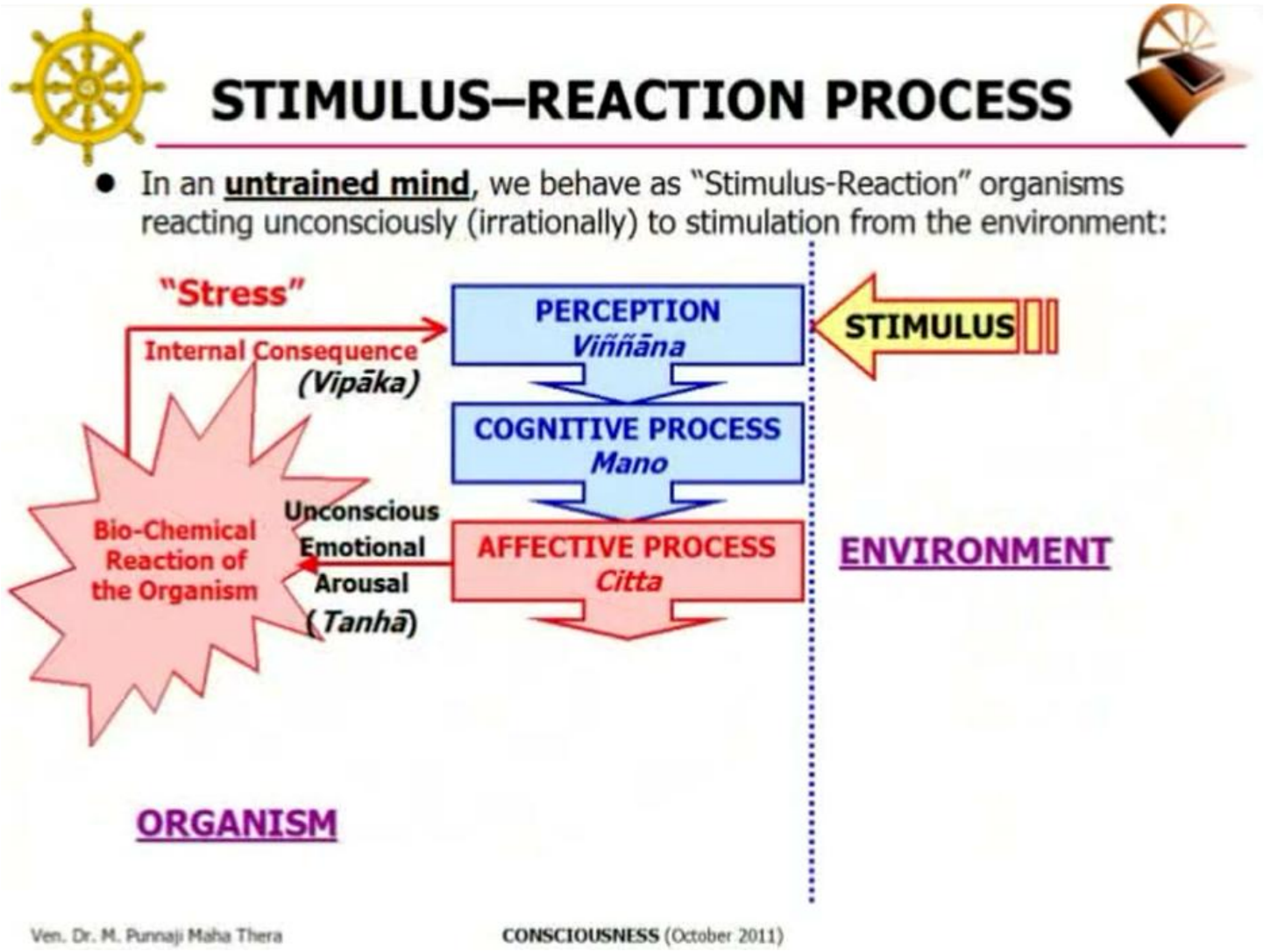
People with PTSD are very sensitively tuned to pick up threat and respond to even very minute stimuli as if their life is in danger.



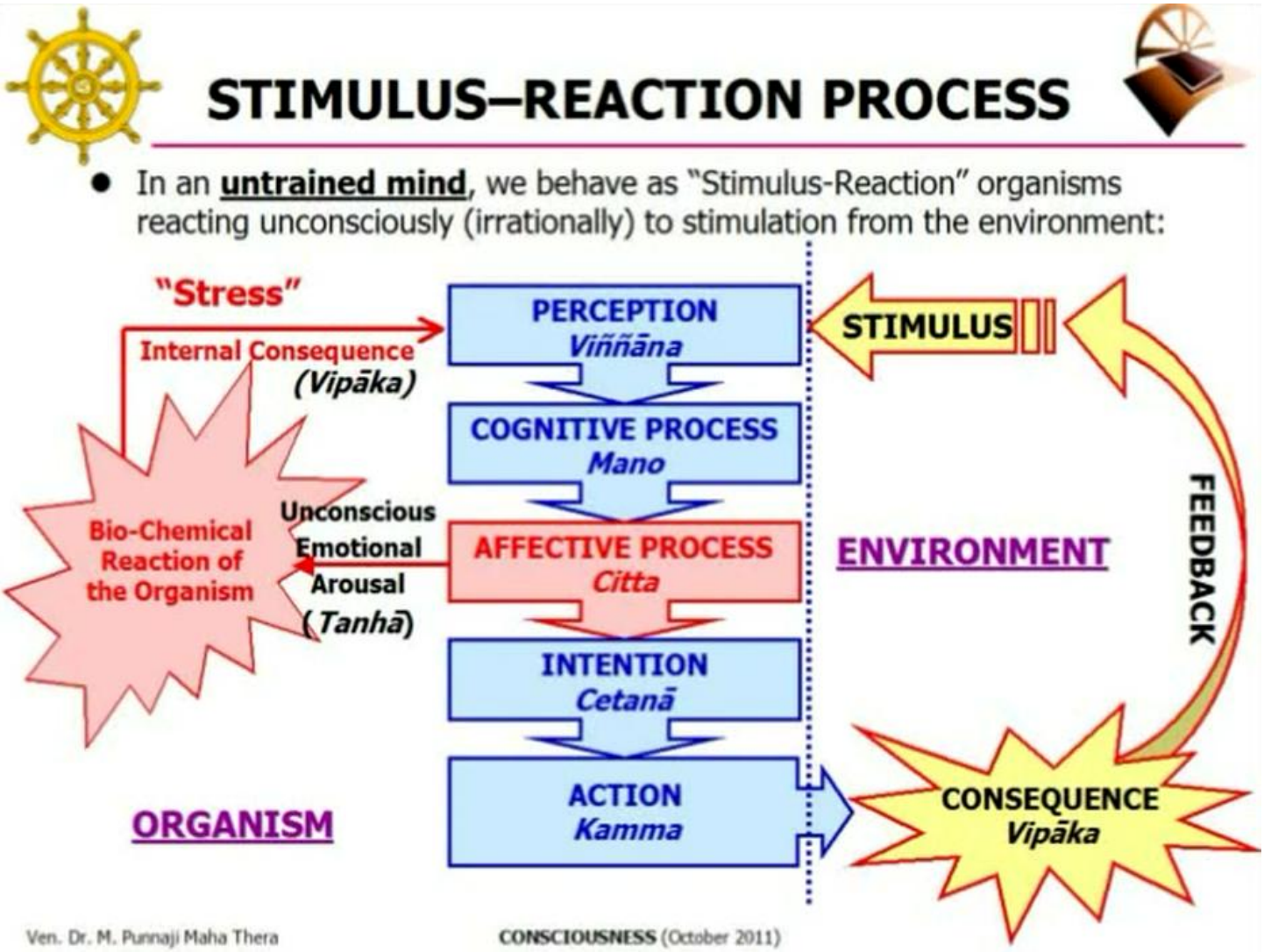
So they mentioned that PTSD, it stands for Post-Traumatic Stress Disorder that means people who have suffered a very Traumatic Experience, that Experience is etched into their Memory so strongly that every time they see something resembling it, something even remotely similar to it, the "*Papañca*" process will recall that traumatic experience.

And if this recall happens frequently, then that person is being held captive by this Traumatic Experience in the Memory, so that is called Post-Traumatic Stress Disorder. And the Amygdala is responsible for doing that.

We will see a case study in a moment of a person who suffers from that.



Very briefly we will just run through again. We have the Environment, the Stimulus, and we form a Perception. From the Perception, the Cognitive Process takes over, tries to interpret it, and the Affective Process also is engaged with this Interpretation. If the Affective Process determines there is some Arousal, it then kicks off an unconscious Emotional Arousal, and Biochemical Reaction in the body begins, and then it gets feedback to us as some kind of a Stress. Now when they talk about Post-Traumatic Stress Disorder, what happens is that, this goes on and on, stuck in a loop; it can't get out of this. You're constantly getting Aroused, reacting, feeling fearful continuously; you have no way of getting out of it. You need help to be able to get out of it; this is for people who suffer from Post-Traumatic Stress Disorder.

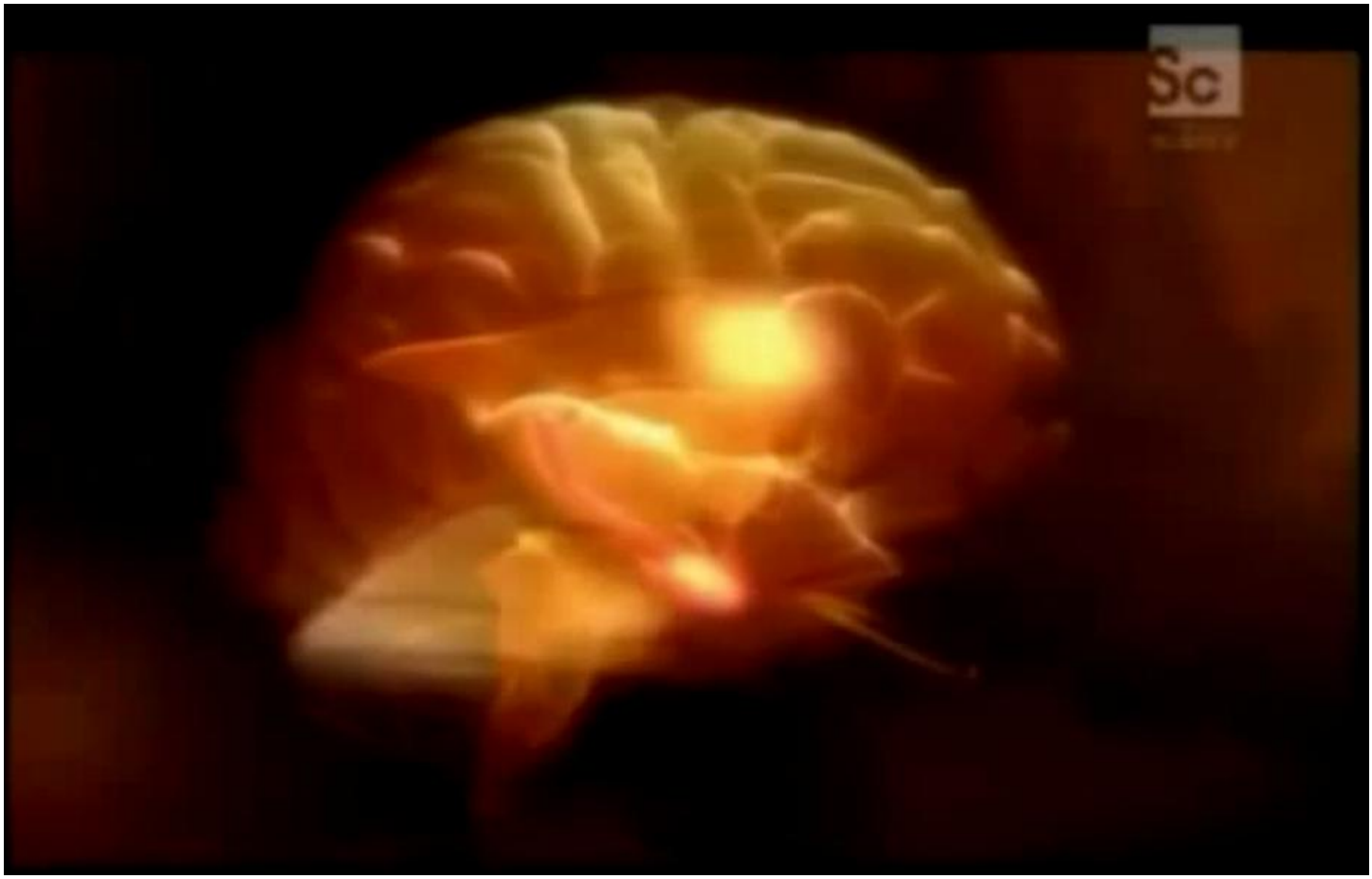


For a normal human being, when you fear, when you encounter a threat, you have a moment to think about what you should do. You have the chance to use your Thinking Brain to make a decision on what to do, and doing something that would change the consequences of the external environment, so that you can actually end up in a better situation; so normal humans who use their thinking brain will have a chance to get out of this traumatic stress disorder loop.

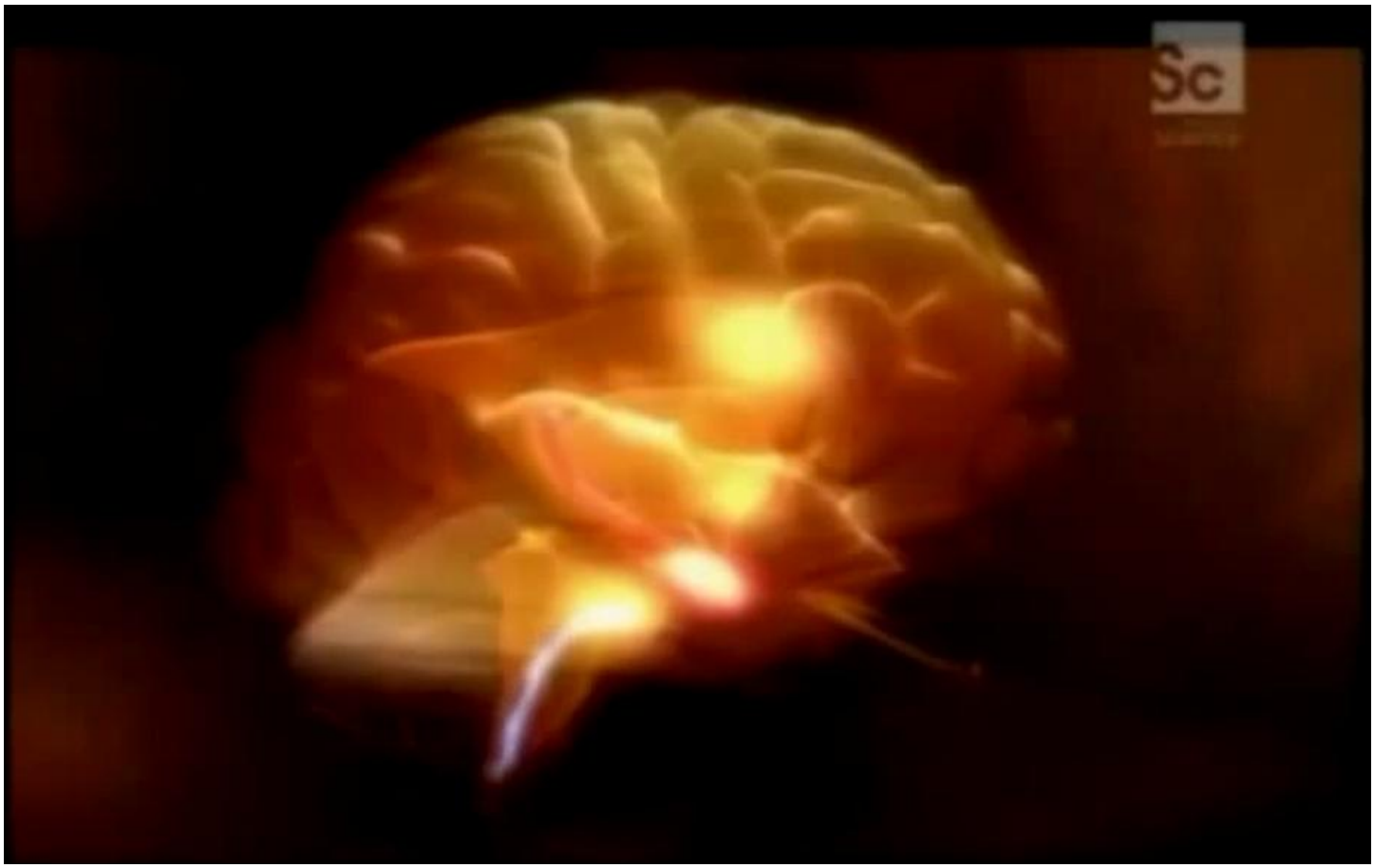
Now is the case study of a guy called “Johnny”; he suffered a motor accident, a car accident and every time he's driving, he actually goes into this Post-Traumatic Stress Disorder.

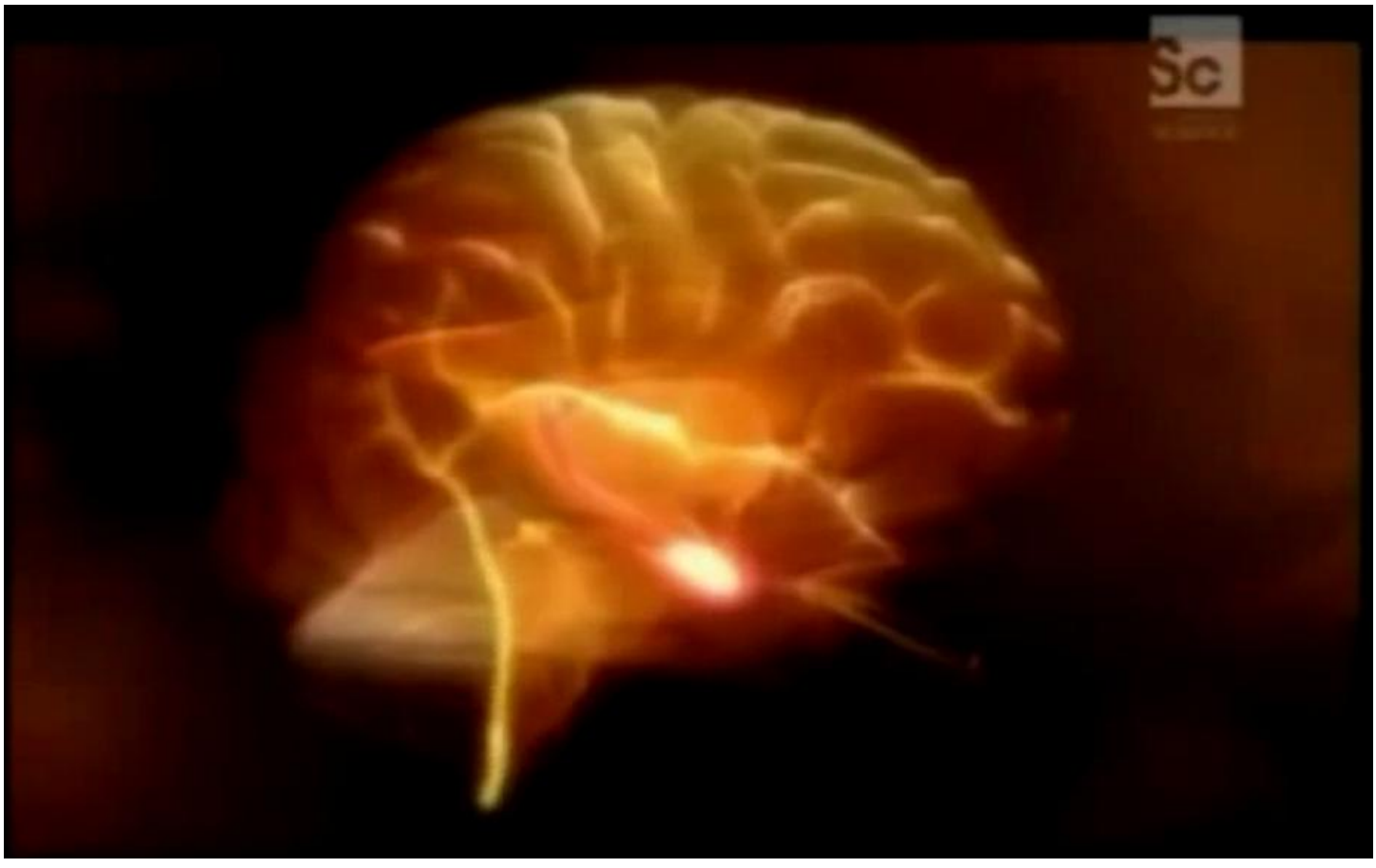
"*Any single noise, I will jump. I am nervous. My heart starts beating fast, so I say what's going on with me, an accident that happened to everybody; to everyone. How an accident can change the life for someone? Why? I can't understand why.*"

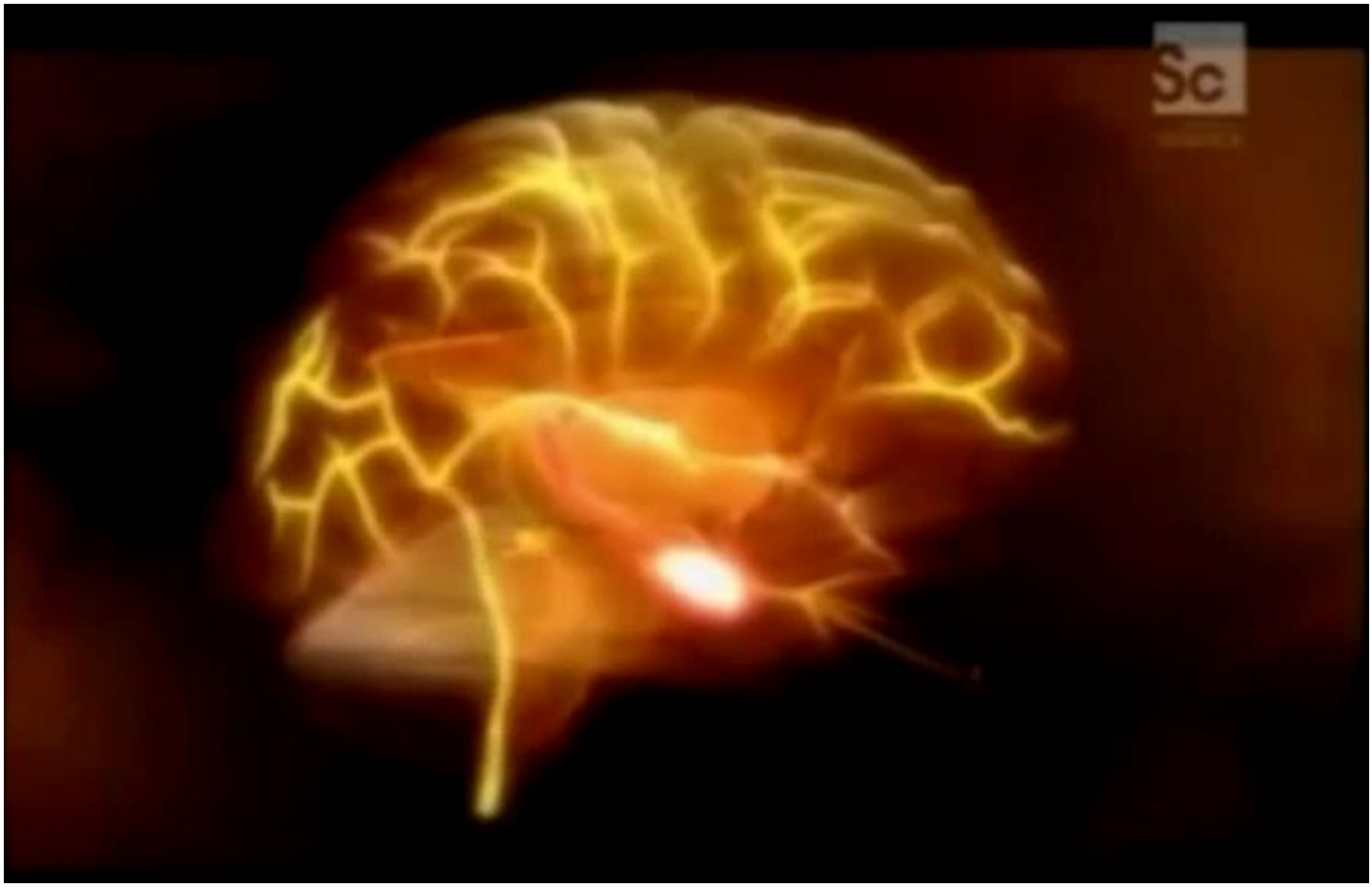
Most people suffering from PTSD are like Johnny, at the mercy of an overly sensitive amygdala, and the hormone that gives that extra burst of energy to help us fight or take flight in the face of danger, Adrenaline.

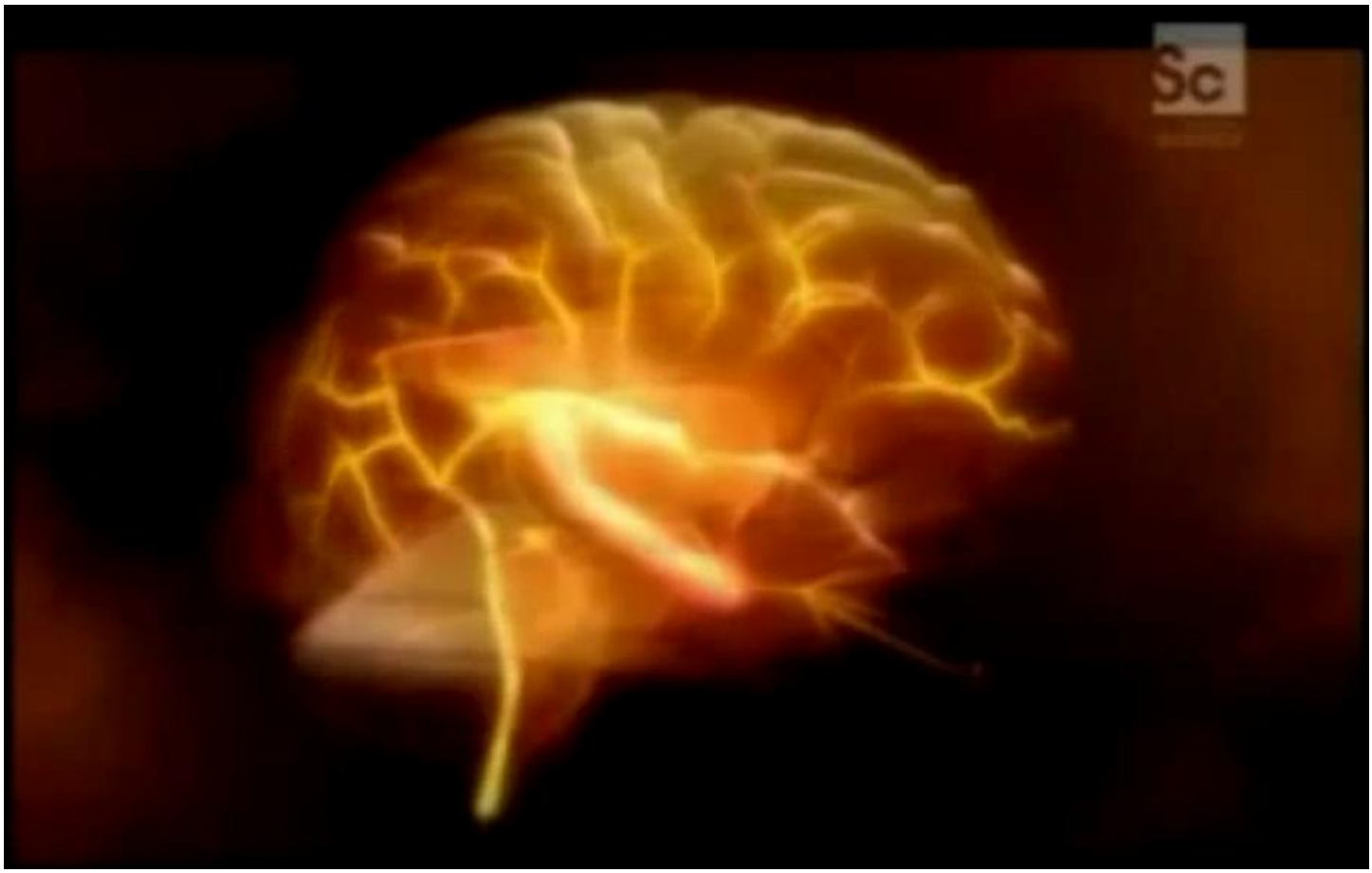


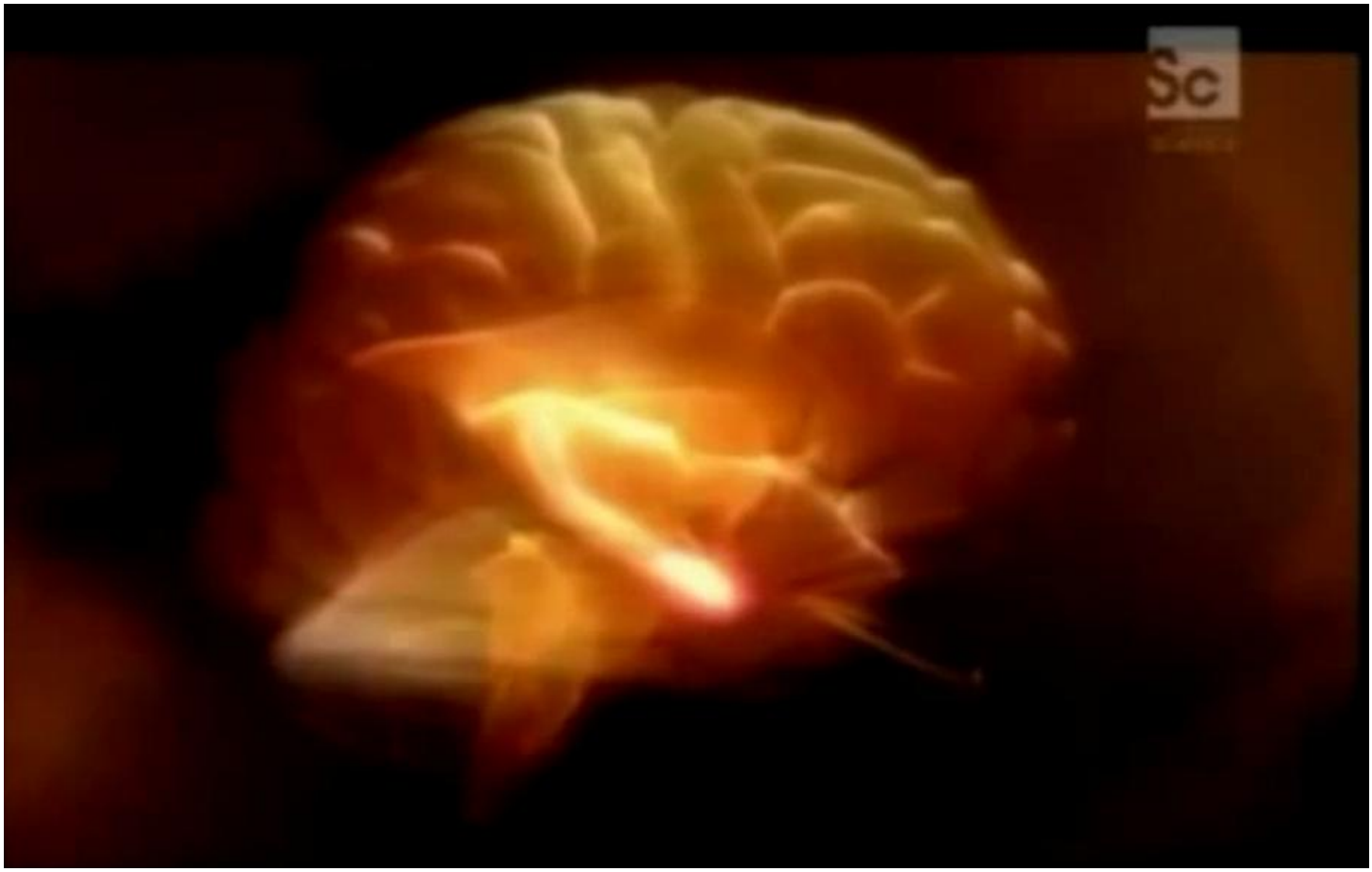
In the moment of terror, the Amygdala sets off a cascade of reactions. A wave of nerve impulses travel down the brain stem and triggers the release of adrenaline in the body, sending a flood of stress hormones into the brain that help etch the memory of the danger more deeply into our neural circuitry, so we can avoid the next time.



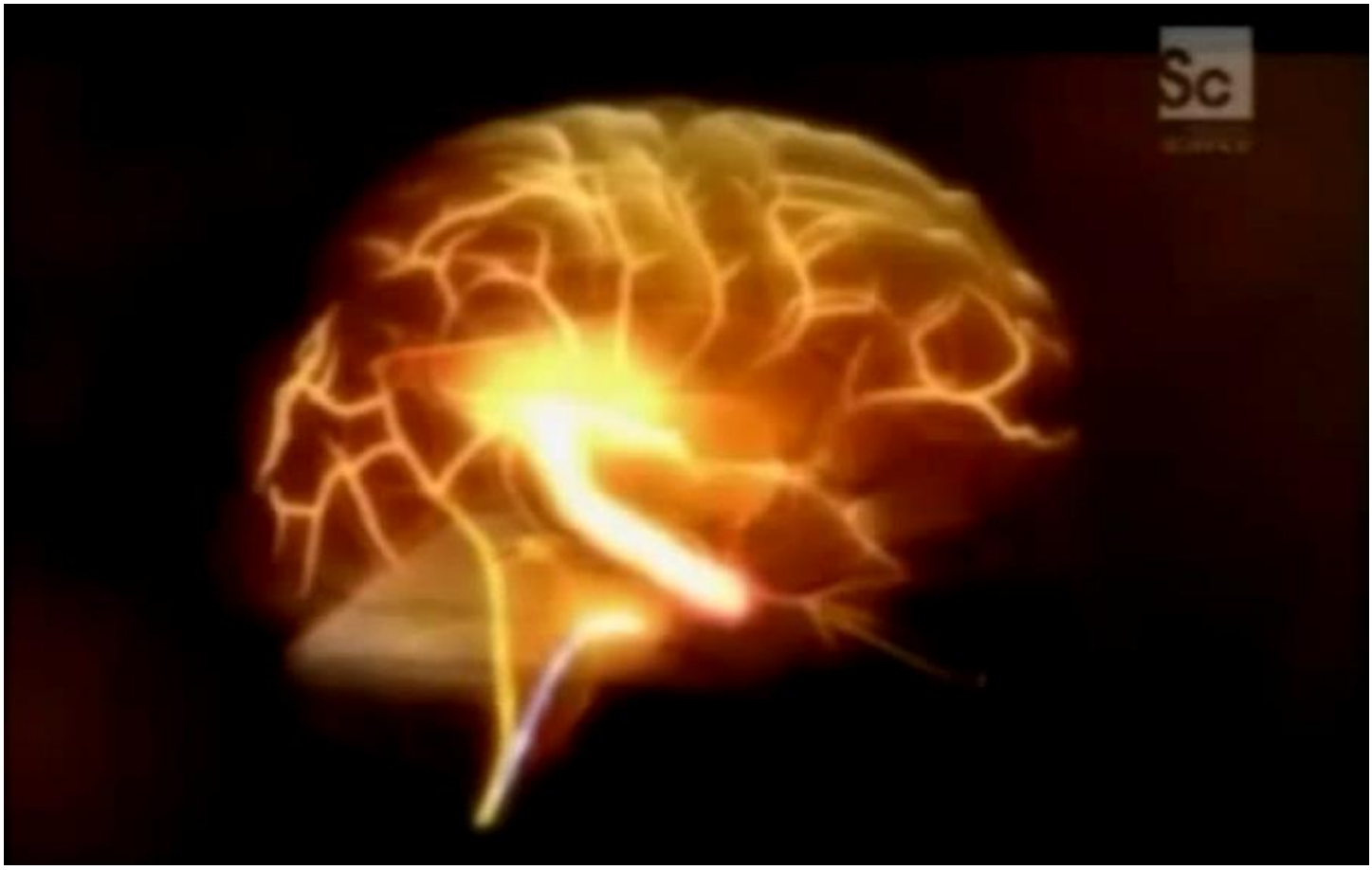






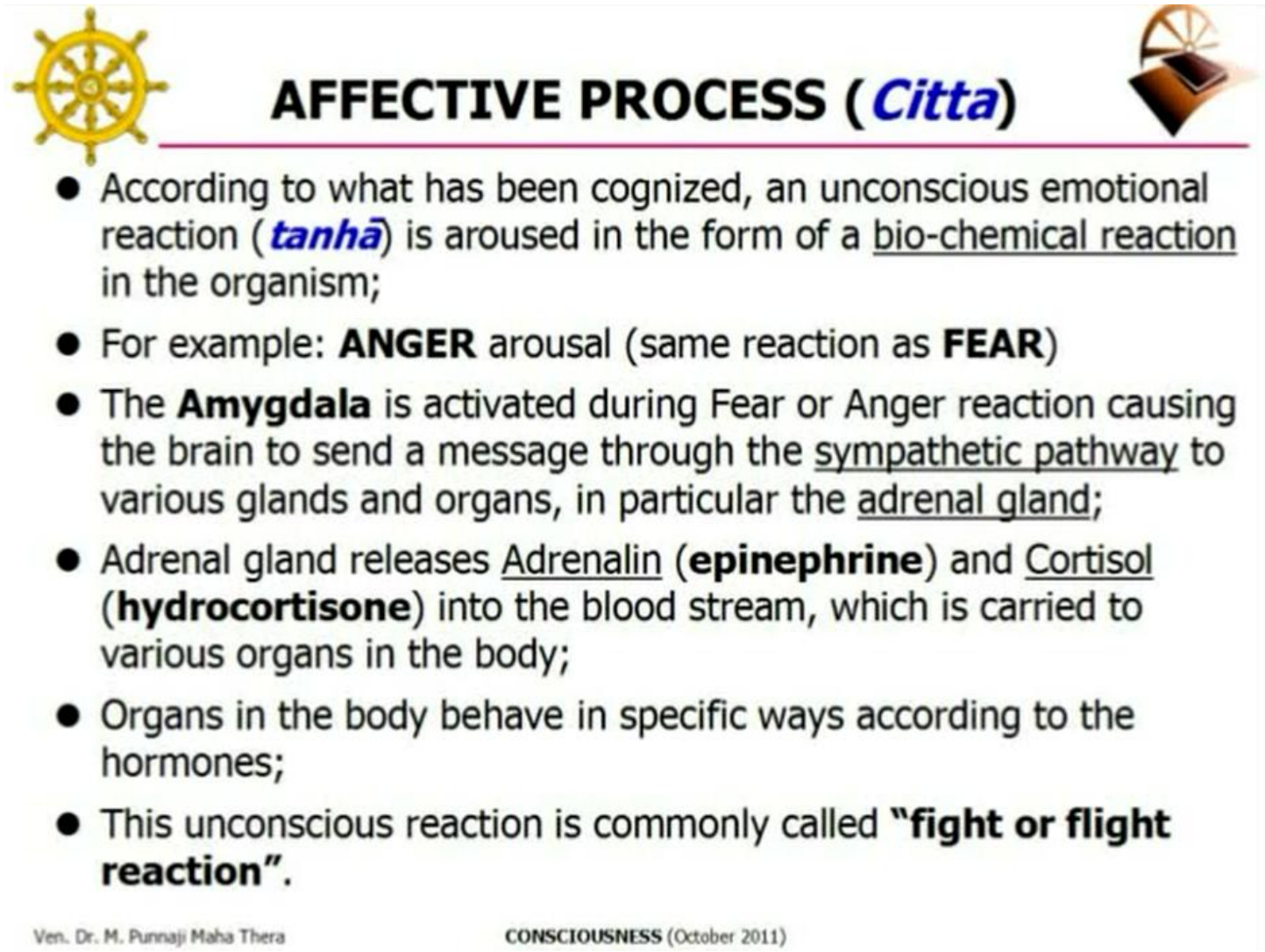


An emotionally arousing experience releases hormones which will enable you to deal with that experience in the future because you'll have a stronger memory of that particular set of circumstances and you can use that information to make decisions about what you do in the future.

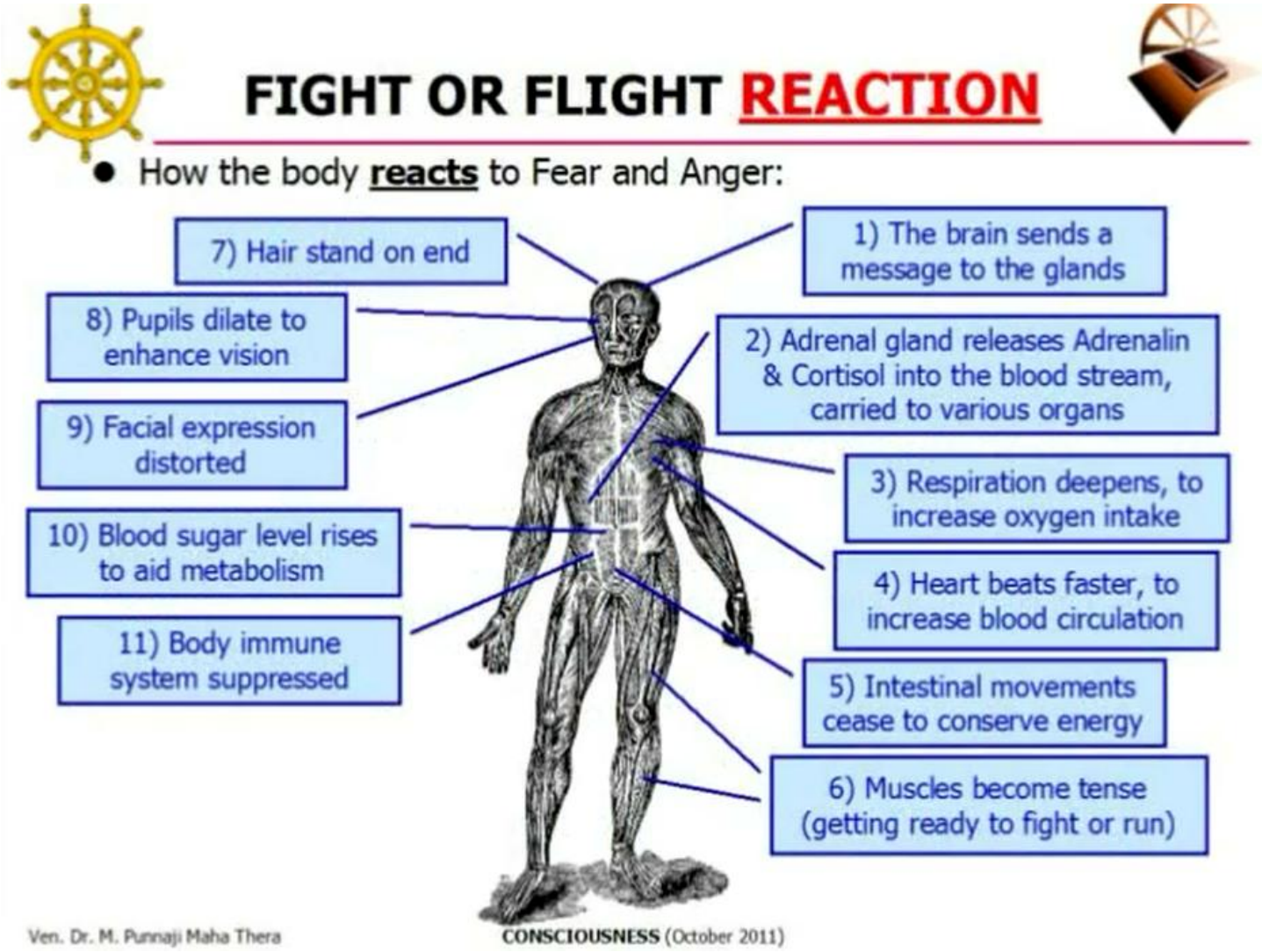


But people with PTSD appeared to have an overly sensitive Amaydala, even a harmless sound can set it off. Again and again the traumatic moment is involuntarily recalled and relived repeatedly, activating the Amygdala and releasing adrenaline each time, searing the trauma deeper into the memory centers of the brain.

Post-traumatic stress disorder is simply ordinary emotion and memory gone haywire. It's gone too far. It's using a very adaptive mechanism for a maladaptive purpose.



Now we look at the Affective Process. So according to what the Cognitive Process has cognized, an unconscious emotional reaction occurs it is aroused in the form of a Biochemical Reaction. For example, when you get angry or you experience fear, both have almost identical reaction in the body; it's called Fight-or-Flight reaction. The Amygdala is activated during this fear or anger reaction, causing the brain to send a message to the Sympathetic Pathway to various glands and organs, in particular the Adrenal Gland. The Adrenal Gland releases two hormones: Adrenaline and Cortisol. In the scientific name is mentioned there, and that goes through your bloodstream; it is carried to the various organs in your body. Organs in the body behave in specific ways according to those hormones, and we will see in a moment what happens. This unconscious reaction is called Fight-or-Flight reaction, and every one of us experiences several times in a day, either when we get angry or when we encounter something we are not familiar with and it frightens us or whatever.



So what does it do Fight-or-Flight reaction; how the body reacts to it.

(1) First the brain sends the message to the glands.
(2) Adrenal Gland releases Adrenaline and Cortisol.
(3) Our breathing gets deeper because we need to take in more oxygen. Oxygen is the food for the brain. Oxygen actually is also the food for your cells to activate.
(4) And the heart beats faster to pump the blood.
(5) Your intestinal system stops because it needs to conserve the energy for the rest of the body to react to the threat.
(6) Your muscles tense up getting ready to fight or run.

(7) Your hair stands on end. Hair standing on end does not serve a purpose; it is a remnant of an Evolutionary Process. Long before we were humans, we were Apes. During those days we had very long ape hair. So hair standing on ends would help the organism look bigger, but of course today we have tiny little hair it doesn't make us look bigger anymore.
(8) And our pupils dilate. The eyeball tries to capture the Image in an enhance way.
(9) And then the facial expression distorts. This again is another remnant of evolutionary past. Distorting the facial expression helps us look very tough and very powerful, so that it frightens away our enemy.
(10) Now this is where Cortisol does serious damage to our body. Adrenaline does most of the things that is happening from 1 to 9. The next two things are actually the work of Cortisol. It increases the blood sugar level and it actually causes the suppression of our immune system.

Imagine what happens to your health when blood sugar level rises regularly, and imagine what happens to your health when your immune system gets shut down from time to time, so that is the work of Cortisol.

This is a very important lesson to learn here. When people get angry there is a very high chance they will get sick very easily. So learn to manage your Emotion and reduce the level of Anger Arousal, right, and then you will actually be healthier.

So let's take a look at what happens when the Amygdala takes control of your body.

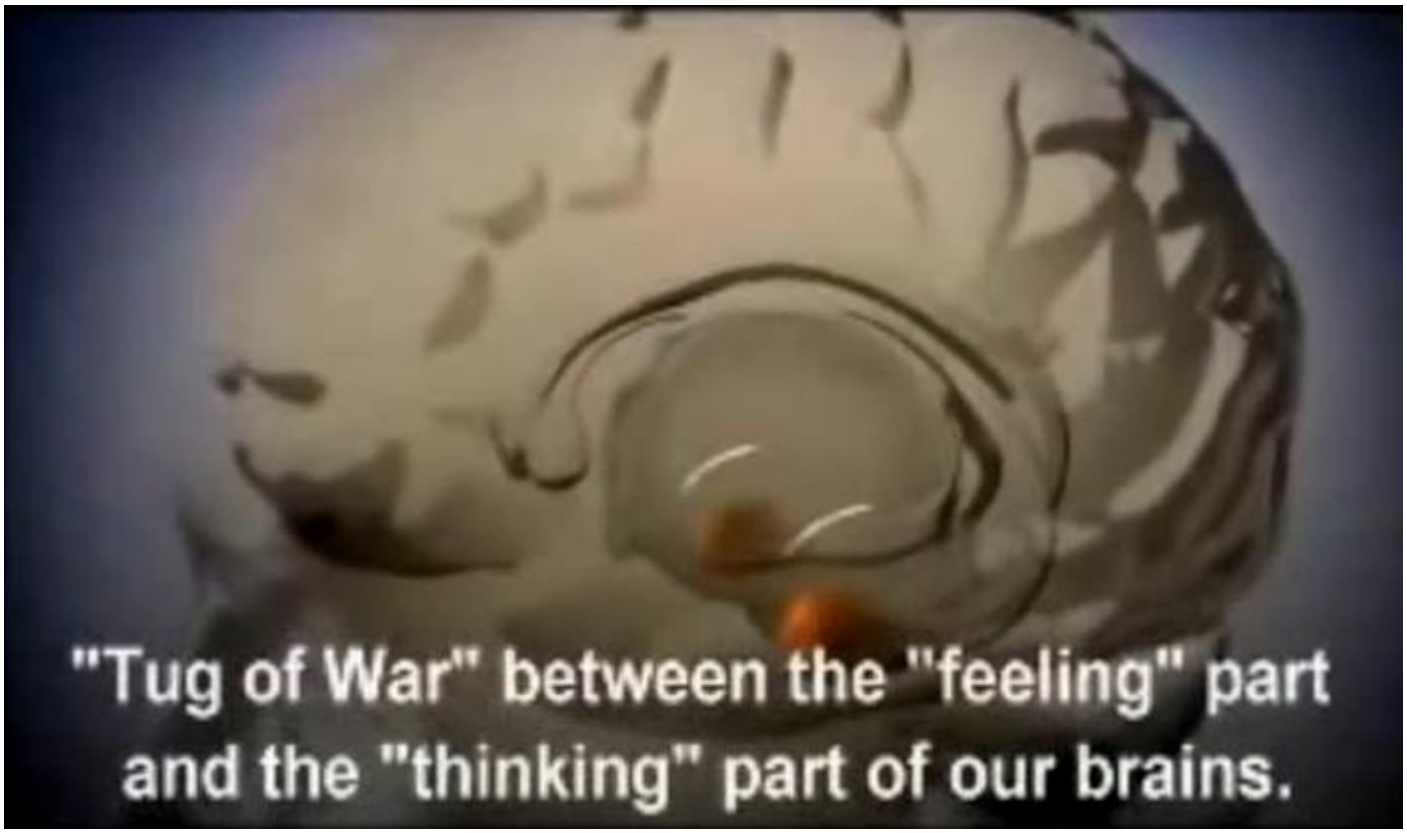
When animals are threatened, they experience a surge of hormones that make them ready to attack or to retreat. Human animals are no exception, our fight-or-flight response is crucial for our survival.

Anger can feel exhilarating because what we do is trigger the Fight-or-Flight response. We secrete lots of Adrenaline to power our large muscles in the event that we have to fight or flee from the predator. We secrete Cortisol which heightens are auditory and visual sensitivity. We stopped digesting lunch because we need to digest lunch if you're about to become lunch; now that response is very appropriate when we're dealing with a life threatening danger. However, the yellow cab driver that cut you off in traffic comes to supplant the saber-tooth tiger that our ancestors Millennia ago were dealing with.

And when we look at what happens physiologically, we stay in this heightened state for quite some period of time, and because we're dealing with Fight-or-Flight, we're dealing with impulses that are very strong.

The emotions associated with fight or flight, emotions like anger and fear, are triggered deep inside our brain.

And when we try to control them, we start a tug of war between our brains oldest and newest parts.


"Tug of War" between the "feeling" part
and the "thinking" part of our brains.


"amygdala"
feeling part

While ancient structures like the amygdala respond to threats by trying to turn our anger or fear on, its newer structures such as the prefrontal cortex the thinking part of our brain that try to turn them off; the tug of war between these two systems that give rise to our emotions.

At New York University neuroscientist Joseph Ledoux has studied how the Amygdala and the cortex shape our emotional responses.


JOSEPH LEDOUX
New York University

You know more about the Amygdala than anybody alive, and you still can't control yours.

No.

Why?

Now there's an interesting thing again that has to do with the wiring of the brain; says if we could look at it here.

So this is the human brain inside the skull. And the prefrontal cortex is here in the front, right behind your forehead, and that is the newest part of the brain. This is where we make our decisions, as to where we plan for the future, and strategize.

The lateral prefrontal cortex has no connectivity with the Amygdala.

The Amygdala has super highways to talk to the Cortex, but the Prefrontal Cortex has only back roads and side streets to get to the Amygdala, and therefore it is unable to tell the Amygdala, "Cool it!"

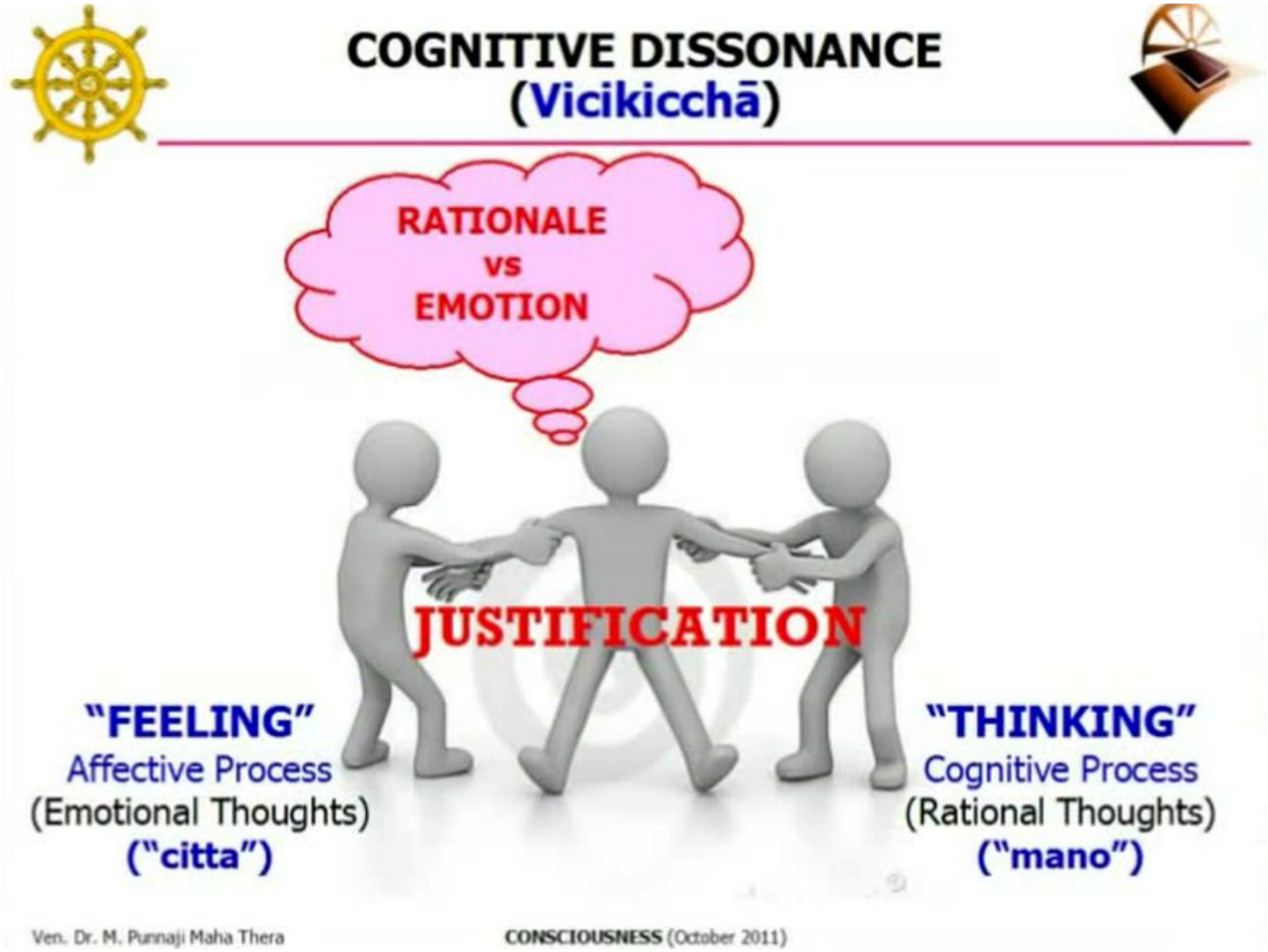
But why are there no connections?

We're in the process of evolving as we speak and those connections have not been put in yet. This thing was built to do fancy things cognitively not necessarily to control our emotions.

The fact that we are not designed to have complete control over our emotions can have some unfortunate consequences.

Well, all these things we have been discussing before, and I hope you understood.

And very important thing is that usually this word "*Vicikicchā*" is translated as doubt; it is not doubt.



"*Vicikicchā*" is where our Mind begins to pull in two different directions, and so very often when the Rational Part and the Emotional Part are in conflict, Emotions always win. And then having won, then the Emotions begin to make use of the logic in the rational part to defend itself, so that is what is called "Justification." So it is very important to understand that. And fortunately there is a part of the brain, which is acting as a toggle switch, which means that the switch can either turn on the Limbic System to become emotional or it can turn off the Cerebral Cortex and become more emotional. And so if you turn off the Limbic System, then you'll be more rational and you're acting the proper way. So this is why we have this ability to change our thinking in this way; only thing is we don't make use of it.

So what we do in our meditation is we are learning to change our way in the right direction, and for that, of course, we need to practice, and practice means repetition. Just as we begin to practice how to type, and it is through practice that ultimately the fingers go into the right places. And even when we begin to learn to play the piano or any musical instruments, we do the same thing: practice.

So in the same way, meditation must be a practice, where we begin to think the right thoughts instead of thinking the wrong thoughts. That is what we call Selective Thinking. So if we keep on practicing the Selective thinking in the proper way, then we'll be able to live in the proper way.

And so this practice is very important, and this is something that we should remember and learn to practice meditation in the proper way.